

# REPORT OF RCRA COMPLIANCE EVALUATION INSPECTION

AT

## **NUTRA-FLO COMPANY**

2717 Port Neal Circle  
Sergeant Bluff, Iowa 51054  
(712) 943-3983  
EPA ID Number: Non-Notifier

ON

September 22, 1998

BY

U.S. ENVIRONMENTAL PROTECTION AGENCY

Region VII

Environmental Services Division

## **INTRODUCTION**

At the request of the Air, RCRA and Toxics Division (ARTD), a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection was performed at Nutra-Flo Company, Sergeant Bluff, Iowa, on September 22, 1998. The inspection was conducted under the authority of section 3007 of RCRA, as amended. This report and attachments present the results of the inspection. A Level B Multi-media Screening Inspection was completed while at this facility, see attachment 1.

## **PARTICIPANTS**

Nutra-Flo Company:

Holly Ashley, Facilities Manager  
Dirk W. Lohry, President of Nulex Division  
Terry Robinson, Purchasing Agent

Long Painting, Homer, Iowa:

Ken Long, Owner

U.S. Environmental Protection Agency (EPA):

Dedriel L. Newsome, Environmental Engineer

## INSPECTION PROCEDURES

Upon arrival at the facility, I met Ms. Ashley. I explained the purpose and procedures of the inspection and presented her with my EPA credentials. I explained to Ms. Ashley the right to make confidentiality claims and I informed her that there would be a Confidentiality Notice at the end of the inspection to make the claim. Ms. Ashley was provided with a copy of US Federal Code 1001 concerning false statements to read. Mr. Lohry joined the inspection later during the facility description discussion and stayed throughout. Upon his arrival, I repeated the purpose and procedures of the inspection.

This inspection consisted of a review of the processes and waste streams. I also conducted a visual inspection and reviewed pertinent documents. During the visual inspection, I was accompanied by Mr. Lohry and Ms. Ashley.

At the conclusion of the inspection, an exit interview was held with Mr. Lohry and Ms. Ashley. During the exit interview, Mr. Lohry acknowledged receipt of the following by his signature: a Confidentiality Notice, a Receipt for Documents and a Notice of Violation (NOV), see attachments 2 through 4. **A claim for confidential treatment of information was made during the inspection for process flow diagrams and names of suppliers.**

## FACILITY DESCRIPTION

Nutra-Flo manufactures granular products and liquid products. The granulation plant produces supplements (zinc sulfate/iron sulfate monohydrate) primarily for the feed industry, see attachment 5-1. It produces about an average of 6000 tons per year. The process diagrams are shown in attachment 6. Ms. Ashley stated that about two months ago, they started a pilot of using zinc sulfate/iron sulfate crystals in the granulation plant to make fertilizer. They have made about 50 tons to date. Based on the results of the pilot, they now plan to continue using the crystals to make fertilizer. Mr. Lohry estimated that 10 percent of their total output will be fertilizer. The granulation plant was not operating at the time of the inspection. The liquid plant (Nulex plant) is used only to produce fertilizers (Nulex Liquid Zinc 10 and Nuflux), see attachment 5-3 through 5-14. It produces about an average of 28,000 tons per year. The process diagrams for it are included in attachment 7. Some of the raw materials used in the granulation and Nulex plants as shown on the process diagrams include sulfuric acid, ammonium chloride, ammonium nitrate, anhydrous ammonia and Nulex zinc sulfate solution. These MSDS's are included as attachment 8.

Nutra-Flo has 25 employees and their shifts vary based on demand, ranging from one 12 hour shift, five days a week to two 12 hour shifts, seven days a week. They are located in a rural industrial area. They have been located at this site (20 acres) for about five years. A layout of the facility is shown in attachment 9.

## FINDINGS AND OBSERVATIONS

*(Please note that any alpha-numeric notations after process units are references to listings on the process diagrams in attachments 6 and 7.)*

### 1. Wastes Generated On-Site

**Solid Wastes** - The following waste streams are collected in a dumpster and are disposed at the Gills Industrial Landfill (Jackson Landfill), Jackson, NE.

- ① **Holding Tank Residue** - The granulation plant holding tank (T-77B) is cleaned about once every two weeks. Residue is shoveled out of the tank and into the dumpster. About 200 pounds of residue is generated per clean out, therefore about 400 pounds is generated per month.
- ② **Floorsweeping** - The granulation plant and Nulex plant areas are swept with a broom or shovel. The sweepings generation rate ranges from zero up to two tons/month.
- ③ **Spent Dust Collector Bags** - The bags from the dust collector baghouses (locations are shown on process diagrams) are periodically changed and are generated at about 20 bags a year. A new type of bag is currently being used that has to be changed less often and therefore this generation rate is expected to decrease.
- ④ **Empty Bags/Pallets** - Some empty bags (super sacks, paper) are recycled. The remaining along with the pallets are disposed in the landfill.

Based on knowledge, these waste streams were determined to be non-hazardous. There were no individual tests done on each of these waste streams. Mr. Lohry stated that they did an analysis on their "product" which would be the same as these waste streams, see attachment 10. This "product" analysis contained the address of the Nutra-Flo facility located in Sioux City, IA and is labeled "zinc iron sulfate". According to attachment 10, this "product" tested as non-hazardous.

**Spent Fluorescent Lightbulbs** - Spent fluorescent lightbulbs are generated during building maintenance. They are collected in the dumpster with the general trash and disposed in the sanitary landfill. The spent bulbs are generated at about a rate of six, four foot bulbs, every six months. No hazardous waste determination had been made on these spent bulbs as required by 40 CFR 262.11. (NOV #1)

**Discarded Aerosol Cans** - Discarded aerosol cans from mostly the use of spray lubricants are collected with the general trash and disposed at Jackson Landfill. I asked if a hazardous waste determination had been made on the discarded cans and she stated that she could not state that one had been done on all the empty cans. Failure to make a hazardous waste determination on the empty aerosol cans is in violation of 40 CFR 262.11. (NOV #1)

**Used Oil** - Used oil is generated from vehicle and equipment maintenance. It is collected in 55-gallon drums and stored near the Maintenance Shop on the east side. The used oil is generated at a rate of about a half a drum every month. It is collected by Jebro, Sioux City, IA, for recycling. At the time of the inspection, I observed the following drums (photos 1 and 2) being stored on the east side of the Maintenance Shop:

- 3 unlabeled drums of used oil (2 full and one partially full)
- 1 labeled drum of used glycol
- 1 empty drum

Failure to label used oil drums is in violation of 40 CFR 279.22(c). (NOV #2)

Also, I observed an oil spill around the drums of used oil, see photo 3. This spill was under the pallets the drums rested on and appeared to have drained toward the ditch on the south side, see photo 2. It was about six feet in diameter. Failure to clean up oil spills is in violation of 40 CFR 279.22(d)3. (NOV #3)

**Spent Anti-Freeze** - Spent anti-freeze is generated from vehicle and equipment maintenance. It is collected in 55-gallon drums and stored near the Maintenance Shop on the east side. The spent anti-freeze is generated at a rate of about three to six drums every six months. It is collected by Safety-Kleen and is determined to be a non-hazardous waste.

**Used Oil Filters** - The used oil filters are drained and then are collected in containers. They are generated at about four to six filters per month. The filters are sent to for recycling in an exchange agreement.

**Oil Contaminated Floor Dry** - Floor dry is added around compressors to catch oil leaks. The spent oil dry is collected in a dumpster with the general trash and is disposed in the sanitary landfill. The generation rate was unknown as it varied, although when oil dry was removed last week, about one five gallon bucket was generated. It is determined to be non-hazardous base on knowledge.

**Contractor Coating Wastes** - Nutra-Flo hired a contractor, , to paint their tanks and their concrete containment areas.

❶ **Sandblast Residue** - At the time of the inspection, the concrete had been sandblasted which generated about 26 55-gallon drums (about 8 to 10 tons) of spent sand. Mr. Long stated that this sand would be hauled to the Jackson Landfill. Ms. Ashley stated that based on their knowledge, this waste was not hazardous as the concrete had not been coated. Mr. Long stated that he has not sandblasted any of the tanks to date.

❷ **Excess Epoxy** - Mr. Long stated that they try to mix just enough epoxy to be used at the time. He stated that any epoxy left over (no more than a half gallon) hardens and is disposed in the sanitary landfill with the general trash. It is determined to be non-hazardous based on knowledge. A MSDS of the two part epoxy, is included as attachment 11-9 through 11-23.

③ Spent xylene and mineral spirits - Mr. Long stated that the painting equipment is cleaned with mineral spirits or xylene (attachment 11-1). He stated that after use, the solvent is collected in a drum and any solvent that settles on top may be reused. The drum is maintained in the trailer that \_\_\_\_\_ uses at various sites. Once the solvent becomes spent, it is collected by Safety-Kleen from \_\_\_\_\_ according to Mr. Long.

**Spent Personal Protective Equipment (PPE)** - Dust masks are used on-site by the employees. About 20 spent dust masks are generated a week. Based on knowledge, they are determined to be non-hazardous and are disposed with the general trash in the sanitary landfill. The employees uniforms are sent off-site for laundering.

**Scrap Metal** - Scrap metal from maintenance is collected and sent to \_\_\_\_\_ for recycling.

**Storm Water** - Storm water is collected in a pit and is then transferred to above ground tanks. The storm water is then reused in the production processes.

**Spent Parts Washer Solvent** - Nutra-Flo installed a parts washer in February 1998 that is serviced by \_\_\_\_\_. The solvent has not been changed to date. The type of solvent used is \_\_\_\_\_ which is a petroleum naphtha with a flash point of 105°, see attachment 12. Prior to installing the \_\_\_\_\_ parts washer, they did not use a washer.

**On-site Recycled Wastes** - Some wastes are generated within the processes and are reused on-site. The granulator (G-1) and drum dryer (DR-1) are cleaned as needed. The solids removed are collected in a bucket and then are reused in the production process within a day or two. Also, the dust collected from the emission control units (baghouses and cyclones) is reused in the production processes.

## **2. Hazardous Wastes Received From Off-Site**

Secondary materials used to produce fertilizer (use constituting disposal) are a solid waste as defined by 40 CFR 261.2. Therefore, if Nutra-Flo receives and stores solid waste that is hazardous to produce fertilizer, then they are required by 40 CFR 270.1(b) to have a RCRA permit. Following is a discussion of the four zinc sources that Nutra-Flo receives and uses to produce fertilizer. As discussed below, two of the zinc sources have metals above TCLP levels. Based on my current general knowledge of how these two zinc sources are manufactured/generated, I am not able to determine whether they are a solid waste and therefore a hazardous waste. More detail information from the zinc source manufacturers is needed to make this determination.

Nutra-Flo receives zinc in various forms to be used in their manufacturing processes. In the Nulex liquid plant the zinc sources consist of zinc ash, zinc oxide, and sal skimmings (a.k.a. sal ammoniac). In the granulation plant the zinc source consists of zinc sulfate/iron sulfate

(zinc/iron) crystals. These four groups of zinc sources are received from various suppliers. I asked for a list of Nutra-Flo's suppliers and received attachment 13.

The zinc sources are all stored in waste piles or in unlabeled containers (drums or super sacks) with very little aisle space. Some of the zinc/iron crystal super sacks contain a supplier label, but most do not. Mr. Lohry stated that the zinc/iron crystals from the various suppliers are all the same, except the zinc to iron ratio which Nutra-Flo keeps track of. When the zinc/iron crystals arrive on-site, a sample is collected and analyzed using a XRF unit to determine the total amount of zinc and iron (no on-site analyses are done on the other zinc sources). The ratio of zinc to iron is then marked on the super sack. For the four groups of zinc sources that were in storage at the time of the inspection, I asked if Nutra-Flo is able to determine what container of material came from what supplier. Mr. Lohry and Ms. Ashley stated that they can not, unless they are marked. They stated that they do not keep track by supplier in this manner because they do not need this information.

Samples were collected from each of the four groups of zinc sources. Since there was no way to distinguish who the supplier was or if the sources on-site was a mixture of suppliers, I decided to collect a random sample from each source. There were three sal skimmings samples because it was in three different locations and forms. There were four zinc/iron crystal samples because there were some zinc/iron crystal containers that contained supplier labels. I collected one sample from a randomly selected super sack from each labeled supplier group. The labeled suppliers were I also randomly selected one unlabeled super sack being stored outside.

More information on these zinc sources and the analytical results are as follows:

| # | TYPE                                                 | ANALYTICAL RESULTS (mg/L)                                                                                                                                              | WHERE STORED AND USED ON-SITE                                                                                                       | PHOTO #    | HOW MANUFACTURED/GENERATED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Zinc Ash                                             | Non-Hazardous                                                                                                                                                          | Stored in waste piles in Process Building Warehouse<br><br>Added to Nulex plant leach tank (T-208)                                  | 4 and 5    | Consists of skimmings removed from zinc galvanizing tanks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2 | Zinc Oxide (see attachment 14 for the MSDS)          | <b>Hazardous</b><br>Sample# 007/007D<br>Cadmium - 1.84/1.51                                                                                                            | Stored in containers in Process Building Warehouse<br><br>Added to Nulex plant leach tank (T-208)                                   | 4, 6 and 7 | I contacted the supplier, _____ on 1/5/99 at about 8:50AM. I asked him how the zinc oxide _____ is made. He stated that they make zinc oxide by taking zinc metal, vaporizing it and then reacting it with oxygen to form zinc oxide. He stated that they use the _____ process to manufacture it. _____ stated that the _____ is their lowest grade and that it could consist of anything that is left over, such as oversized materials, screenings and even floor sweepings. I asked if any comes from a dust collector and he stated that all of their material collects in a dust collector as it is vaporized. |
| 3 | _____ (see attachment 15 for the MSDS)               | Non-Hazardous                                                                                                                                                          | Stored in waste piles and containers in Process Building Warehouse<br><br>Added to Nulex plant reactor (RX1) and leach tank (T-208) | 8 thru 13  | Some of the skimmings are received as coarse material ranging in size from dust to large pieces about 3ft x 2ft x 1ft. Some is also received in powder form which has been sent through a ball mill to remove the metals (the metal being zinc according to Mr. Lohry). Unknown how generated or manufactured.                                                                                                                                                                                                                                                                                                       |
| 4 | Zinc /Iron Crystals (see attachment 16 for the MSDS) | <b>Hazardous</b><br>- Sample# 009<br><br>Selenium - 1.34<br>- Sample #012<br>Unlabeled Crystals<br>Selenium - 1.04<br><br>Non-Hazardous<br>-<br>(Selenium - 0.96)<br>- | Stored in super sacks in Morten Building<br><br>Added to granulation plant mix tank (T-77A)                                         | 14 thru 20 | _____ crystals generated from zinc galvanizing solutions. Spent galvanizing solutions are sent through a beta machine where the spent solution is turned into zinc/iron crystals.                                                                                                                                                                                                                                                                                                                                                                                                                                    |

As shown in the above Table, the zinc oxide and two of the four zinc/iron crystals tested as hazardous. Without more detail information from the zinc source manufacturers to determine what all specifically is included in these sources, I am not able to determine whether they are a solid waste and therefore a hazardous waste.

Nutra-Flo receives letters from their suppliers of the zinc sources certifying that they are raw material substitutions as the one shown in attachment 17. When Mr. Lohry provided the product analysis discussed above in #1 (attachment 10), he pointed out that the product did not meet the lower LDR treatment standards for lead, and then stated that however, the product is not made from hazardous waste. Mr. Lohry stated that they do not use any hazardous waste to make their micro-nutrient products. I asked if they ever have and he stated that they have not. He stated they have been asked to use some waste, but they did not. I asked Mr. Lohry what made them decide not to use any hazardous waste. He stated that they decided not to because Nutra-Flo did

not have a Part B permit, that they would have to take out the lead and cadmium and that they did not want to handle waste. Mr. Lohry was aware of the issues and knew they used brass ball mill to make their products. He was also familiar with dust being used to make fertilizer. He appeared to be aware of the RCRA regulations including the LDR requirements and how they effect the fertilizers.

Ms. Ashley stated that the Nulex plant materials are stored about three to nine months and the granulation plant materials about an average of three months. She stated they try to process everything within a year. The Process Building Warehouse and the Morten Building where these zinc sources were being stored contained some dust/residue on the floor, see photos 21 through 26 and 27 through 29, respectively. In both warehouses, the dust/residue on the floor was an average of about two inches thick. I observed a tear in one of the bags of zinc/iron crystals and some had spilled out, see photo 28. The doors of both the warehouses were open which allowed air to flow throw and dust to flow about, see photos 21, 22, 25 and 26. While visually inspecting the Morten Building, one of the employees informed Mr. Lohry that they had just finished organizing and cleaning this warehouse.

### **3. RCRA Status**

Nutra-Flo is a non-notifier. At the time of the inspection, Nutra-Flo was determined to be a conditionally exempt small quantity generator (CESQG) based on known hazardous waste and a used oil generator and was inspected as such, see attachment 18 for the checklist. If it is determined that any of the zinc sources Nutra-Flo receives and stores is a hazardous waste, then they would also be a treatment/storage/disposal (TSD) facility as discussed above in #2.

### **4. Other Violations**

**Waste Determination on Unknowns** - I observed four unknown drums (one about ½ full and three that were strapped together--one of the three labeled hydraulic oil), see photos 30 through 32. Since they were strapped together it was difficult to determine their volume. Mr. Lohry stated that he did not know what these drums contained and how long they had been there because he did not know they were there. He pointed these drums out to Ms. Ashley, but she did not know what was in them either. Failure to make a hazardous waste determination is in violation of 40 CFR 262.11. (NOV #1)

**Oil Spills** - I observed an oil spill on the southwest side of the facility in the area where the cement trucks are cleaned out. Nutra-Flo was in the process of expanding their Nulex plant and one of the cement trucks had a hydraulic oil leak, see photos 33 thru 35. It was about 10 ft x 35 ft. Ms. Ashley stated the oil spill occurred yesterday (9/21/98) or that morning (9/22/98) because she was in this area before this time and did not see it. Prior to the inspection being completed, this spill had been cleaned and fresh gravel filled in, see photo 36. Failure to clean up oil spills is in violation of 40 CFR 279.22(d)3. (NOV #3)



## **SAMPLING**

### **1. Purpose and Objective**

The purpose and objective of this sampling activity is discussed in the attached Quality Action Project Plan (QAPP), see attachment 19. Tetra Tech provided sampling support during this inspection. A Trip Report was provided and contains documentation on the weather conditions, samples collected, sample locations and sampling procedures, see attachment 20. The field sheets and Chain-of-Custody form are included as attachments 21 and 22. The facility representatives requested splits when I offered, therefore they were provided.

### **2. Analytical Results**

The analytical results are included as attachment 23.

#### **a. Hazardous Waste Determinations**

According to the QAPP, any waste exceeding the regulatory thresholds is determined to be a hazardous waste. The following four samples exceeded the TCLP limits:

| <b>SAMPLE #</b> | <b>DESCRIPTION</b>   | <b>CONSTITUENT</b> | <b>RESULTS (mg/L)</b> |
|-----------------|----------------------|--------------------|-----------------------|
| 007             | Zinc Oxide           | Cadmium            | 1.84                  |
| 007D            | Zinc Oxide           | Cadmium            | 1.51                  |
| 009             | Zinc/Iron Crystals - | Selenium           | 1.34                  |
| 012             | Zinc/Iron Crystals   | Selenium           | 1.04                  |

#### **b. Hazardous Release Determinations**

There were no visible spills or piles of micro-nutrients or incoming zinc sources observed on the ground. All the products and incoming chemicals are stored inside a warehouse or on a concrete pad. Therefore, no soil samples were collected.

### **3. QC Analysis**

According to the QAPP, the field duplicates will be compared to the R7 ENSV LAST QCSUM report. The field duplicates fall within the acceptance limits as defined in the QAPP except sample #007/007D total cadmium, mercury and selenium and cadmium TCLP, see attachments 24 and 25. This may be accounted for by the variability of metals in the sample. Sample #007/007D consisted of the zinc oxide which is discussed in attachment 21-5.

## SUMMARY

As discussed above, two of the zinc sources have metals above TCLP levels. More detail information on how they are generated or manufactured is needed to make a determination on whether they are a solid waste and therefore a hazardous waste.



Dedriel Newsome

Environmental Engineer

Date: 4/5/99

### Attachments

1. Multi-media Screening Checklist (2 pages)
2. Confidentiality Notice (1 page)
3. Document of Receipt (1 page)
4. NOV (1 page)
5. Product MSDS (14 pages)
6. Granulation Process Diagram (3 pages)
7. Nulex Process Diagram (6 pages)
8. Raw Material MSDS (27 pages)
9. Facility Layout (1 page)
10. Product Analysis (1 page)
11. Painting Contractor MSDS (23 pages)
12. Parts Washer Solvent MSDS (5 pages)
13. Supplier list (2 pages)
14. Zinc Oxide MSDS (4 pages)
15. Skimmings MSDS (2 pages)
16. Zinc/Iron Crystals MSDS (2 pages)
17. Certification Letter (1 page)
18. Checklist (9 pages)
19. QAPP (26 pages)
20. Tetra Tech Trip Report (9 pages)
21. Field Sheets (10 pages)
22. Chain-of-Custody (1 page)
23. Analytical Results (5 pages)
24. QC Calculations (1 page)
25. QC SUM Report (2 pages)

Photo Log (3 pages)

Photographs (12 pages / 36 photos)

# REGION VII MULTIMEDIA SCREENING CHECKLIST

Facility: Nutra Flo Facility Ownership: Nutra Flo Co. Inspector: Dedriel Newsome  
 Address: 2717 Port Neal Circle Facility Contact: Holly Ashley, Fac. Mgr. Primary Media: RCRA  
St Bluff Phone: (712) 943-3979 SIC code: unknown Date: 9/22/98  
 County: Woodbury Section: 31 Number of Employees: 25  
 Township: 87N Range: 47W Work Schedule/Hrs: var 1 to 2 shift 12 hr  
S77° 49' 18" W - 22 19.41' N 5 d 4 5 night / week seasonal

1. Are there any permits or registrations in the following areas? [Please indicate → Federal = F, State = S, Local = L]  
 NPDES: wastewater ( ) pretreatment ( ) 404-Wetlands ( ) UIC ( ) UST ( ) PWS ( ) RCRA ( ) TRI ( ) CAA ( ) Other ( )  
 Describe: \_\_\_\_\_

2. What does the facility do? Fertilizer Mfg / Feed Mfg

3. What raw materials are used? sulfuric acid, ammonium chloride, ammonium nitrate, anhydrous ammonia

4. What fuels are used? Diesel, Natural gas, gasoline, propane, electricity

5. Provide brief process description: Manufacture zinc products for the Mix & Blend, Dry, Granulate & Store

6. What major processes are used? Blending ☒ Mixing ☒ Reacting ☒ Distilling ☐ Filtering ☐ Separating ☐ Formulating ☐  
 Machining ☐ Fabricating ☐ Printing ☐ Coating: Water-based ☐ Solvent-based ☐ Electroplating: Chrome ☐ Other \_\_\_\_\_  
 Electroless plating, Type \_\_\_\_\_ Degreasing: Water-based ☐ Halogenated solvent-based ☐ Non-halogenated solvent-based ☐  
 Assembly ☐ Laboratory Analysis ☒ Combustion ☐ Other \_\_\_\_\_

| 7. Describe each waste generated by the facility: | Waste Name                | Generation Process | Est. Quantity Per/Month | Final Disposition of Waste | How Long Stored | Is The Waste Hazardous?  |                          |                          |
|---------------------------------------------------|---------------------------|--------------------|-------------------------|----------------------------|-----------------|--------------------------|--------------------------|--------------------------|
|                                                   |                           |                    |                         |                            |                 | No                       | Yes                      | Don't know               |
|                                                   | see attached sheet report |                    |                         |                            |                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                                   |                           |                    |                         |                            |                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                                   |                           |                    |                         |                            |                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                                   |                           |                    |                         |                            |                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                                   |                           |                    |                         |                            |                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## ENVIRONMENTAL JUSTICE

1. Describe surrounding area (check all that apply): Industrial ☒ Business ☐ Residential ☐ Rural ☒ Abandoned/Dilapidated Properties ☐  
 2. Income & proximity to other property: Low ☐ Low-moderate ☒ Moderate-high ☐ Proximity: 0-10' ☐ 10-100' ☐ 100-1000' ☐  
 3. Potential access to facility hazards by children and public? Easy access ☐ Moderately difficult access ☐ Very difficult access ☒

NPDES - National Pollution Discharge Elimination System, UIC - Underground Injection Control, PWS - Public Water Supply

| 1. How are wastewaters handled?      | None                     | On-site Treatment        | Municipal Sewer          | Storm Sewer              | Surface Water            | Septic                              | Injection Well           | Land                     |
|--------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| Process wastewater <u>reused</u>     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| Non-contact wastewater <u>reused</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| Sanitary wastewater                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other _____                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

Comments: \_\_\_\_\_

2. Did you see any wastewater discharges not identified by the facility? No ☒ Yes ☐ Location of discharge: \_\_\_\_\_  
 Appearance of discharge: \_\_\_\_\_ (PHOTO ☐)  
 3. What is the source of the facility's process water? Rural/Municipal ☐ Private well ☒ Pond ☐ River ☐ Other ☐  
 4. What is the source of the facility's drinking water? Rural/Municipal ☐ Private well ☒ Pond ☐ River ☐ Other ☐  
 5. What is the source of drinking water for the area around the facility? Rural/Municipal ☒ Private well ☒ Don't know ☐  
 6. Is public water source (e.g., Rural/Municipal/Private well, etc.) protected by a backflow prevention device? No ☐ Yes ☒ Don't know ☐

## WETLANDS

1. Are there any surface water bodies (e.g., ponds, streams, lakes, rivers, etc.) or temporarily wet areas that have been disturbed by filling, waste disposal, ditching, excavation, damming, dredging, etc.? No ☒ Yes ☐ Don't know ☐ Describe/locate: \_\_\_\_\_ (PHOTO ☐)

### CAA - Clean Air Act

1. Are there any visible smoke or dust emissions? (non-steam) No ☒ Yes ☐ Source: \_\_\_\_\_ Time: \_\_\_\_\_ (PHOTO ☐)
2. Is there any dust leaving the property? No ☒ Yes ☐ Source: \_\_\_\_\_ Time: \_\_\_\_\_ (PHOTO ☐)
3. In the past 2-3 years, has the facility modified or installed any new air emission points? No ☐ Yes ☒  
Describe: Added a granulation plant. Was a permit obtained? No ☐ Yes ☒ Permit No. \_\_\_\_\_
4. Do stationary air conditioning or refrigeration units that contain: less than 50lbs refrigerant/unit ☒ more than 50 lbs refrigerant/unit ☐ or both ☐  
Are these units: Self-serviced? ☒ Contract Serviced? ☐ → Service Company: \_\_\_\_\_
5. Are motor vehicle air conditioning systems: Self-serviced? ☐ Contract Serviced? ☒ → Service Company: any maintenance garage

### RCRA - Resource Conservation And Recovery Act & UST's - Underground Storage Tanks

1. Are there any of the following on-site waste management activities? Treatment ☐ Storage ☒ Burning ☐ Landfills ☐  
Surface impoundments ☐ Recycling ☐ → Are recyclables stored more than one year? No ☐ Yes ☐ Don't know ☐
2. Is wastewater sludge generated? No ☒ Yes ☐ → Is it hazardous? No ☐ Yes ☐ Don't know ☐  
Where does the sludge go? Hazardous waste disposal site ☐ Off-site landfill ☐ On-site landfill ☐ Land applied ☐
3. Is used oil generated? No ☐ Yes ☒ → Are the containers labeled "Used Oil"? No ☒ Yes ☐ (PHOTO ☐)
4. Are any hazardous waste containers or tanks leaking, open, or not labeled? No ☐ Yes ☒  
Describe: used oil (PHOTO ☐)
5. Are there any signs of past spills or releases (e.g., dead/stressed vegetation, stains, discoloration)? No ☐ Yes ☒  
Describe: used oil (PHOTO ☐)
6. Are there any past or present underground storage tanks that contain petroleum, waste oil, or hazardous substances? No ☒ Yes ☐
7. Are there any underground fuel storage tanks for emergency generators? No ☒ Yes ☐
8. Do any of the chemical, industrial, or hazardous waste handling procedures concern you? No ☐ Yes ☒ (PHOTO ☐)  
Describe: storage of zinc sources

### TITLE III-EPCRA-Emer. Planning & Community Right to Know Act, SEC. 5 TSCA-Toxic Substances Control Act & PCB's-Polychlorinated Biphenyls

1. Have Toxic Chemical Release Forms (Form R's) been submitted under Section 313 of EPCRA? No ☐ Yes ☒ [must have >10 employees to apply]
2. Have hazardous chemical inventory forms (Tier II forms) ever been submitted under Section 312 to local Emergency Planning Committees or fire department? No ☐ Yes ☒ If no, describe chemicals and volumes stored: \_\_\_\_\_
3. Does facility import or manufacture a chemical substance? No ☐ Yes ☒ Describe type and intended use: \_\_\_\_\_
4. Is there any equipment in service containing PCB's > 500 ppm? No ☒ Yes ☐ Don't Know ☐ Is it leaking or not labeled? No ☐ Yes ☐
5. Is there any equipment in storage containing PCB's > 50 ppm? No ☒ Yes ☐ Don't know ☐ Is it leaking or not labeled? No ☐ Yes ☐

### SPCC - Spill Prevention Control and Countermeasure Plan:

1. Are there above ground tanks that store oil (petroleum, synthetic, animal, fish, or vegetable): In a single tank > 660 gallons or in tanks with an aggregate volume > 1320 gallons? No ☒ Yes ☐ → Is there an SPCC Plan? No ☐ Yes ☐ Is there secondary containment? No ☐ Yes ☐
2. Are the tanks leaking or threatening to leak into waters of the State or U.S.? No ☒ Yes ☐  
Describe: \_\_\_\_\_ (PHOTO ☐)

### FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act

1. Does the facility manufacture, repack, or apply pesticides? No ☒ - STOP HERE Yes ☐  
Are rinsates handled in an environmentally sound manner? No ☐ Yes ☐ Describe: \_\_\_\_\_ (PHOTO ☐)
2. Do workers use personal protective equipment (gloves, long sleeve shirts, coveralls) when mixing/loading? No ☐ Yes ☐  
Describe: \_\_\_\_\_

**\* PLEASE TAKE PHOTOS TO DOCUMENT POTENTIAL PROBLEMS**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
CONFIDENTIALITY NOTICE

|                                                                            |              |
|----------------------------------------------------------------------------|--------------|
| Facility Name<br>Nutra Flo                                                 |              |
| Facility Address<br>Port Neal, IA                                          |              |
| Inspector (print)<br>Dedriel Newsome                                       |              |
| U.S.EPA, Region VII, ENSV Division, 25 Funston Road, Kansas City, KS 66115 | Date<br>2/18 |

The United States Environmental Protection Agency (EPA) is obligated, under the Freedom of Information Act, to release information collected during inspections to persons who submit requests for that information. The Freedom of Information Act does, however, have provisions that allow EPA to withhold certain confidential business information from public disclosure. To claim protection for information gathered during this inspection you must request that the information be held CONFIDENTIAL and substantiate your claim in writing by demonstrating that the information meets the requirements in 40 CFR 2, Subpart B. The following criteria in Subpart B must be met:

1. Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.
2. No statute specifically requires disclosure of the information.
3. Disclosure of the information would cause substantial harm to your company's competitive position.

Information that you claim confidential will be held as such pending a determination of applicability by EPA.

|                                                                                                     |                |
|-----------------------------------------------------------------------------------------------------|----------------|
| I have received this Notice and <u>DO NOT</u> want to make a claim of confidentiality at this time. |                |
| Facility Representative Provided Notice (print)                                                     | Signature/Date |

|                                                                                    |                |
|------------------------------------------------------------------------------------|----------------|
| I have received this Notice and <u>DO</u> want to make a claim of confidentiality. |                |
| Facility Representative Provided Notice (print)                                    | Signature/Date |

DIRE COURT 2/18

Information for which confidential treatment is requested:

PROCESS FLOW DIAGRAMS

LIST OF SUPPLIERS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RECEIPT FOR DOCUMENTS AND SAMPLES

|                                          |
|------------------------------------------|
| Facility Name<br><u>Nutra Flo</u>        |
| Facility Address<br><u>88. Bluff, IA</u> |

Documents Collected? YES ☒ (list below) NO ☐

Samples Collected? YES ☒ (list below) NO ☐ Split Samples: YES ☐ NO ☐

Documents/Samples were: 1) Received no charge ☒ 2) Borrowed ☐ 3) Purchased ☐

Amount Paid: \$  Method: Cash ☐ Voucher ☐ To Be Billed ☐

The documents and samples described below were collected in connection with the administration and enforcement of the applicable statute under which the information is obtained.

Receipt for the document(s) and/or sample(s) described below is hereby acknowledged:

Certificate of Raw Mat'l (1 page)

012 Zn/Fe Crystal West Outside

MSDS (77 pages)

List of Suppliers (2 pgs)

Lab Analysis (1 pg)

Process Diagram (9 pgs)

Layout

Samples

001 - Sal Skim Bay 3

002 " " " 5

003 " " " East Drums

005 Zn Ash Bay 6

007 Zn Oxide Bay 6

007D Zn Oxide North east Bag

009 Zn/Fe Crystal -

010 " " " "

011 " " " "

Facility Representative (print)

Dick Loney

Signature/Date

Dick Loney 9-22-98

Inspector (print)

Dedrie Newsome

Signature/Date

Dedrie Newsome 7/22/98

U.S.EPA, Region VII, ENSV Division, 25 Funston Road, Kansas City, KS 66115

Notice of Violation Pursuant to Requirements  
of the Resource Conservation and Recovery Act (RCRA)

TO: Facility Name: Nutra Flo  
Address: 2717 Port Neal Circle  
Seasons Bluff, IA 51054  
EPA ID Number: Non-Notifier Date: 9/2/98

This notice is provided to call your attention to the following areas of noncompliance with state and federal regulations. This notice does not constitute a compliance order (Administrative Civil Complaint) pursuant to Section 3008 of RCRA and may not be a complete listing of all violations resulting from the the inspection.

| Citation                           | Description of Violation                 |
|------------------------------------|------------------------------------------|
| <u>1. <del>40 CFR 262.11</del></u> | <u>Make a hazardous waste dete</u>       |
| <u>2. 40 CFR 279.22 (c)</u>        | <u>on 4 unknown drums; aerosol cans,</u> |
| <u>3. 40 CFR 279.22 (d) 3</u>      | <u>fluorescent light bulbs</u>           |
|                                    | <u>Failure to label used oil drums</u>   |
|                                    | <u>Failure to clean up oil spills</u>    |
|                                    |                                          |
|                                    |                                          |
|                                    |                                          |
|                                    |                                          |
|                                    |                                          |

You are requested to submit a written response within **14 calendar days** of receipt of this notice. Your response should include a description of all corrective actions taken and/or a schedule for completing the necessary corrective actions. The response should be submitted to:

U. S. Environmental Protection Agency, Region VII

25 Funston Rd  
Kansas City, KS 66115

ATTN: Dedriel Newsome

If you have any questions about this Notice or wish to discuss your response, you may call me at

(913) 551-5058, or Beth Koesterer (Compliance Officer) at  
(913) 551-7673.

This Notice prepared by Dedriel Newsome Date: 9/22/98

The undersigned person acknowledges that he/she has received a copy of this Notice and has read same.

Printed Name: Dirk Lott Date: 9/2  
Signature: [Signature]  
Title: PREP

Notice of Violation Pursuant to Requirements  
of the Resource Conservation and Recovery Act (RCRA)

TO: Facility Name: Nutra Flo  
Address: 2717 Port Neal Circle  
Seagen + Bluff, IA 51054  
EPA ID Number: Non-Notifier Date: 9/22/98

This notice is provided to call your attention to the following areas of noncompliance with state and federal regulations. This notice does not constitute a compliance order (Administrative Civil Complaint) pursuant to Section 3008 of RCRA and may not be a complete listing of all violations resulting from the the inspection.

| <u>Citation</u>                    | <u>Description of Violation</u>                                                                       |
|------------------------------------|-------------------------------------------------------------------------------------------------------|
| <u>1. <del>40 CFR</del> 262.11</u> | <u>Make a hazardous waste determination on 4 unknown drums; aerosol cans; fluorescent light bulbs</u> |
| <u>2. 40 CFR 279.22(c)</u>         | <u>Failure to label used oil drums</u>                                                                |
| <u>3. 40 CFR 279.22(d)3</u>        | <u>Failure to clean up oil spills</u>                                                                 |
|                                    |                                                                                                       |
|                                    |                                                                                                       |
|                                    |                                                                                                       |
|                                    |                                                                                                       |
|                                    |                                                                                                       |
|                                    |                                                                                                       |

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(913) 551-7673.

This Notice prepared by Dedriel Newsome Date: 9/22/98

The undersigned person acknowledges that he/she has received a copy of this Notice and has read same.

Printed Name: Dick Lott Date: 9-22-98  
Signature: [Signature]  
Title: Pres



# MATERIAL SAFETY DATA SHEET

## PRODUCT IDENTIFICATION

Trade Name: Zinc Sulfate/Iron Sulfate Monohydrate  
 Manufacturer's Name: Nutra Flo Company  
 Address: 1919 Grand Avenue  
 Sioux City, IA 51107  
 Emergency Phone: Chemtrec 1-800-424-9300  
 24 hours a day  
 Business Phone: (712) 943-3983 or 800 831-4815  
 Date of Preparation: 10/7/96

## COMPOSITION and INFORMATION ON INGREDIENTS

| Chemical Name            | CAS#      | % w/w | Exposure Limits in Air |      |      |      |      |
|--------------------------|-----------|-------|------------------------|------|------|------|------|
|                          |           |       | ACGIH                  |      | OSHA |      |      |
|                          |           |       | TLV                    | STEL | PEL  | STEL | IDLH |
|                          |           |       | ppm                    | ppm  | ppm  | ppm  | ppm  |
| Zinc Sulfate Monohydrate | 7446-20-0 | 55    | 1                      |      | 1    |      |      |
| Iron Sulfate Monohydrate | 7782-63-0 | 45    | 1                      |      | 1    |      |      |

## HAZARD IDENTIFICATION

### Symptoms of Over Exposure:

Excessive inhalation of dust or solution mist is irritating to the respiratory tract. Eye contact is irritating and can be damaging. Ferrous sulfate is low in toxicity but ingestion of huge quantities can produce GI tract disturbances, severe shock, vomiting, liver damage, tachycardia, and even delayed death.

Zinc sulfate is a poison by ingestion, intraperitoneal, subcutaneous, and intravenous routes. Human systemic effects by ingestion: acute pulmonary edema, agranulocytosis, blood pressure decrease, diarrhea, and GI changes.

Health(blue) Slight

Reactivity(yellow) Slight

Flammability(red) None

## EXPOSURE CONTROL - PERSONAL PROTECTIVE EQUIPMENT

Eyes Goggles

Hands Rubber Gloves

Respiratory Dust Mask (3M #8710)

Body Long sleeve shirt and pants, rubber apron

## FIRST-AID MEASURES

Wash skin with soap and water. If in the eyes, flush with large quantities of water.

## FIRE-FIGHTING MEASURES

Flash Point, °C (method): None

Autoignition Temperature, °C: None

Flammable Limits (in air by volume, %): Lower: None

Upper: None

### Fire Extinguishing Materials:

Use water spray or proper extinguishing media

Special Fire-Fighting Procedures:

Decomposition can generate toxic SO<sub>x</sub> gas. Employee full protective clothing and SCBA when this material is involved in a fire.

Unusual Fire and Explosion Hazards:

Store in a cool dry area away from alkaline materials and oxidizing agents.

## ACCIDENTAL RELEASE MEASURES

Spill and Leak Response:

Avoid creating dust. Scoop up spilled solids for recovery or proper disposal. Those involved in cleanup need protection from inhalation and skin contact.

## HANDLING AND STORAGE

Work Practices and Hygiene Practices:

Dust mask, rubber gloves and proper clothes should be used when handling this material

Storage and Handling Practices:

Store in a dry cool area away from alkaline materials and oxidizers.

## PHYSICAL AND CHEMICAL PROPERTIES

|                                        |                      |                                     |        |
|----------------------------------------|----------------------|-------------------------------------|--------|
| <u>Vapor Density:</u> (Air=1.00)       | N/A                  | <u>Evaporation Rate (n-BuAc=1):</u> | N/A    |
| <u>Specific Gravity:</u> (Water=1.000) | 120 lbs/cubic foot   | <u>Melting Point or Range:</u>      | N/A    |
| <u>Solubility in Water:</u>            | 100%                 | <u>Boiling Point:</u>               | 572 °F |
| <u>Vapor Pressure mm Hg @ 25 °C:</u>   | N/A                  | <u>pH: (10% solution)</u>           | 3      |
| <u>Appearance and Color:</u>           | Tan to a Brown Color |                                     |        |

## STABILITY AND REACTIVITY

Stability: This material is stable

Hazardous Polymerization: Does not occur

Materials with which Substance is Incompatible: Alkaline and oxidizing materials

Conditions to Avoid:

Conditions to Avoid:

## TOXICOLOGICAL AND ECOLOGICAL INFORMATION

Suspected Cancer Agent: Zinc and it's compounds are on the Community Right-To-Know list.

Effect of Chemical on Aquatic Life: Zinc has a detrimental effect on aquatic life.

## DISPOSAL CONSIDERATIONS

Preparing Wastes for Disposal: Follow proper procedures for a hazardous substance.

EPA Waste Number:

## TRANSPORTATION INFORMATION

THIS MATERIAL IS A HAZARDOUS SUBSTANCE AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION

Proper Shipping Name:

Hazard Class Number and Description:

UN Identification Number:

Packing Group:

DOT Label(s) Required:

Emergency Response Guide Number:

RQ:

Zinc sulfate and Iron sulfate monohydrate mixture

Environmentally hazardous substance class 9

UN 3077

Packing group III

Chemtrec 1-800-424-9300

RQ 1000/454

# MATERIAL SAFETY DATA SHEET

## PART I: What is the material and what do I need to know in an emergency?

### 1. PRODUCT IDENTIFICATION

**TRADE NAME (AS LABELED):** Nulex Liquid Zinc 10

**MANUFACTURER'S NAME:** Nutra-Flo Company

**ADDRESS:** P.O. Box 2334, 1919 Grand Avenue  
Sioux City, IA 51107-0334

**EMERGENCY PHONE:** Chemtrec 1-800-424-9300 24 hours a day

**BUSINESS PHONE:** 712-277-2011

**DATE OF PREPARATION:** April 25, 1997

### 2. COMPOSITION AND INFORMATION ON INGREDIENTS

| CHEMICAL NAME                            | CAS NO.   | %w/w    | EXPOSURE LIMITS IN AIR       |                              |                              |                              |             |                                |
|------------------------------------------|-----------|---------|------------------------------|------------------------------|------------------------------|------------------------------|-------------|--------------------------------|
|                                          |           |         | ACGIH                        |                              | OSHA                         |                              |             | NIOSH<br>REL<br>ppm            |
|                                          |           |         | TLV<br>TWA<br>ppm            | STEL<br>ppm                  | PEL<br>ppm                   | STEL<br>ppm                  | IDLH<br>ppm |                                |
| Zinc Chloride<br><chem>ZnCl2</chem>      | 7646-85-7 | 0-21    | 1<br>(fume)                  | 2<br>(fume)                  | 1<br>(fume)                  | 2<br>(fume)                  | NE*         |                                |
| Zinc Sulfate<br><chem>ZnSO4</chem>       | 7733-02-0 | 0-25    | NA*                          | NA*                          | NA*                          | NA*                          | NA*         |                                |
| Ammonium Hydroxide<br><chem>NH4OH</chem> | 1336-21-6 | 38-54   | 25<br>(as <chem>NH3</chem> ) | 35<br>(as <chem>NH3</chem> ) | 50<br>(as <chem>NH3</chem> ) | 35<br>(as <chem>NH3</chem> ) |             | 50CL<br>(as <chem>NH3</chem> ) |
| Water<br><chem>H2O</chem>                | 7732-18-5 | Balance | None                         | None                         | None                         | None                         | None        |                                |

NE\*=NOT ESTABLISHED

NA\*=NOT AVAILABLE

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** This product is a clear, blue to blue-green liquid with a strong ammonia odor. Downwind exposure to ammonia fumes is likely. Responders should be prepared with suitable gas masks with an ammonia canister or appropriate self-contained breathing apparatus.

#### HAZARDOUS MATERIAL INFORMATION SYSTEM

##### NFPA HAZARD RATING

**LEAST: 0 SLIGHT: 1 MODERATE: 2 HIGH: 3  
EXTREME: 4**

#### SYMPTOMS OF OVER EXPOSURE BY ROUTE OF EXPOSURE:

**INHALATION: ACUTE:** Ammonia is a severe irritant of the eyes, respiratory tract and skin. It may cause burning and tearing of the eyes, runny nose, coughing, chest pain, cessation of respiration, and death. It may cause severe breathing difficulties which may be delayed in onset.

**CHRONIC:** No evidence of chronic effects found.

**CONTACT WITH SKIN OR EYES: EYES:** May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. **SKIN:** Prolonged or repeated exposure may cause skin irritation.

**SKIN ABSORPTION:** None of the ingredients are known to be skin absorbing agents.

**INGESTION:** Ammonium Hydroxide, Zinc Chloride, and Zinc Sulfate are human poisons by ingestion.

**INJECTION:** Ammonium Hydroxide, Zinc Chloride and Zinc Sulfate are poisons by subcutaneous, intravenous and intraperitoneal routes.

#### HEALTH EFFECTS OR RISKS FROM EXPOSURE (An explanation in lay terms):

**ACUTE:** Redness or irritation of the tissue which had contact with the product (skin, eyes, mucus membranes) can occur. Ingestion can lead to stomach aches and nausea.

**CHRONIC:** Stomach pains, vomiting, diarrhea, lung irritation, chest pains and edema can occur. Animal studies of zinc compounds indicate that there are potentially adverse effects on the reproductive system and developing fetuses.

**HEALTH (BLUE) 2**

**FLAMMABILITY (RED) 0**

**REACTIVITY (YELLOW) 0**

#### PROTECTIVE EQUIPMENT

| EYES                               | RESPIRATORY   | HANDS         | BODY          |
|------------------------------------|---------------|---------------|---------------|
| SEE SECTION 8                      | SEE SECTION 8 | SEE SECTION 8 | SEE SECTION 8 |
| For Routine Industrial Application |               |               |               |

## PART II: What should I do if a hazardous situation occurs?

### 4. FIRST-AID MEASURES

**IF INHALED:** Remove to fresh air. Give artificial respiration if victim is not breathing. Get immediate medical attention.

**IN CASE OF EYE CONTACT:** Immediately flush eyes with running water for 30 minutes, lifting the upper and lower eyelids occasionally. Get immediate medical attention.

**IN CASE OF SKIN CONTACT:** Immediately flush skin with running water for 30 minutes. Remove contaminated clothing and shoes, wash before reuse. Get immediate medical attention.

**IN CASE OF INGESTION:** CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, DO NOT induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. Get immediate medical attention.

Victims of chemical exposure and all rescuers must be taken for medical attention. Take copy of label and MSDS to physician or health professional with victim.

## 5. FIRE-FIGHTING MEASURES

FLASH POINT, °C (method): NA  
AUTOIGNITION TEMPERATURE, °C: NH =1204 Deg F.  
FLAMMABLE LIMITS (in air by volume, %): Lower: 15  
Upper: 28

### FIRE EXTINGUISHING MATERIALS:

Water Spray: OK  
Foam: OK

Carbon Dioxide: OK  
Dry Chemical: OK

Halon: NA

**SPECIAL FIRE FIGHTING PROCEDURES:** Use water spray to control ammonia vapors. Wear full protective clothing and SCBA.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When heated to decomposition, this product will emit toxic fumes containing ammonia, nitrogen oxides, sulfur oxides, chloride compounds, and zinc oxide, ammonia vapors in the range of 15-28 percent can explode on contact with a source of ignition. Use of welding or flame cutting equipment on or in an ammonia container is not recommended unless all ammonia has been purged, rinsed with water and any oil residue removed.

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## 6. ACCIDENTAL RELEASE MEASURES

**SPILL AND LEAK RESPONSE:** For small or incidental releases, the minimum personal protective equipment should be rubber gloves, rubber apron, chemical goggles. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Gas masks with ammonia canister or SCBA gear may be required. For large spills, contain by diking with soil or other non-combustible absorbent material. Dilution with water will reduce the release of ammonia vapors. Keep material out of sewers, storm drains, and surface waters. Comply with all applicable governmental regulations on spill reporting, handling, and disposal of waste.

## PART III: How can I prevent hazardous situations from occurring?

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Avoid getting chemicals ON YOU or IN YOU. Wash hands after handling chemicals. Do not eat or drink while handling chemicals.

**HANDLING PRACTICES:** Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

**STORAGE PRACTICES:** Store in a cool, dry, well-ventilated area away from incompatible materials. This product may be stored in well maintained vessels constructed of mild steel, stainless steel, fiberglass, polypropylene or polyethylene. Valves should be inspected on a regular basis and replaced as needed to prevent leakage. Flanged valves versus threaded valves are recommended on storage tanks. Valves and components containing EPDM, Hypalon, Neoprene, silicone or Tygon are acceptable. Aluminum or aluminum alloys should **NOT** be used to store or transport the product. Bronze, brass or copper alloys are **NOT** compatible with this product. Valves and components containing Buna N, natural rubber or polycarbonate should **NOT** be used. Label tanks **CAUTION TO WELDERS**.

**VENTING:** Vessels should be vented in accordance with manufacture's recommendations. A pressure/vacuum vent constructed of acceptable materials and providing suitable pressure and vacuum relief is recommended. A pipe vent or T-type vent may be used and constructed in such a manner so as to prevent rain water from entering the vessel. Since this is an ammoniated product containing free ammonia, open venting during warm weather may allow enough ammonia to escape to allow zinc compounds to precipitate. A well-designed vent can reduce this ammonia loss.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Do not cut, grind, weld or drill on vessels containing this material. Vessels must be emptied, cleaned and tested for explosivity (LEL-Lower Explosion Limit). (See ANSI-K93-1976)

## **8. EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation to keep ammonia concentrations below applicable standards when possible.

**RESPIRATORY PROTECTION:** If use conditions generate vapors or mists, wear a NIOSH approved respirator appropriate for those emission levels. Appropriate respirator may be a full facepiece respirator equipped with ammonia cartridges, a self-contained breathing apparatus in the pressure demand mode, or a supplied-air respirator.

**EYE PROTECTION:** Chemical goggles and full faceshield unless a full facepiece respirator is also worn. It is generally recognized that contact lenses should not be worn when working with chemicals because contact lenses may contribute to the severity of an eye injury.

**HAND PROTECTION:** Rubber gloves with gauntlets.

**BODY PROTECTION:** Use body protection appropriate for task. Alkali resistant cover-alls, rubber aprons or chemical protective clothing made from rubber are generally acceptable, depending upon the task.

**OTHER PROTECTIVE MEASURES:** An eyewash and safety shower should be nearby and ready for use.

---

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**VAPOR DENSITY:** Air=1.00  $\text{NH}_3 = 0.60$       **EVAPORATION RATE (n-BuAc=1):** NA

**SPECIFIC GRAVITY:** 1.220 @ 72 Deg F.

**MELTING POINT:** 10 Deg F.

**SOLUBILITY IN WATER:** Dilution with greater than 7 parts of water may cause precipitation of zinc hydroxide.

**BOILING POINT:** 170 Deg F.

**VAPOR PRESSURE, mm Hg @ 25°C:** 5

**pH:** 10.0-11.5

**APPEARANCE AND COLOR:** Clear, blue to blue-green solution

**HOW TO DETECT THIS SUBSTANCE (warning properties):** Pungent ammonia odor.

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## **10. STABILITY AND REACTIVITY**

**STABILITY:** Stable

**CONDITIONS TO AVOID:** High Temperatures

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong acids

**HAZARDOUS POLYMERIZATION:** Will not occur

## **PART IV: Is there any other useful information about this material?**

### **11. TOXICOLOGICAL INFORMATION**

#### **TOXICITY DATA:**

**Zinc Chloride:** LD50 orl-rat: 350 mg/kg, ihl-hmn TCLO: 4800 mg/m<sup>3</sup>/3H

**Zinc Sulfate:** LD50 orl-rat: 2949 mg/kg

**Ammonium Hydroxide:** LD50 orl-rat: 350 mg/kg; LDLO orl-hmn: 43 mg/kg; LDLO ihl-hmn: 1000 ppm/3 hr; LCLO ihl-hmn: 5000 ppm; TCLO ihl-hmn: 408 ppm. Odor is perceptible ppm, causes discomfort at 150-200 ppm, is severely irritating at 400-700 ppm, may be fatal within 30 minutes at 2000-3000 ppm, and is immediately fatal at 10,000 ppm.

**SUSPECTED CANCER AGENT:** NO

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Inhalation exposure will aggravate pre-existing respiratory ailments, skin contact may aggravate pre-existing dermatitis.

**Dermal Exposure:** Reddening and irritation. Severe irritant to eyes.

**Ingestion Exposure:** Nausea and stomach pains.

**Inhalation Exposure:** Irritation of nose and throat. Coughing

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms.

---

### **12. ECOLOGICAL INFORMATION**

**ENVIRONMENTAL STABILITY:** Zinc is stable in the environment. Its transport in the environment depends upon the exact compound, the pH, the soil type, and the salinity. All work practices should be aimed at eliminating environmental contamination.

**EFFECT OF MATERIAL ON PLANTS OR ANIMALS:** Animal studies have shown that zinc chloride and zinc sulfate are poisons by ingestion, intravenous, subcutaneous, and intraperitoneal routes. Zinc has been shown to bioaccumulate, though the amount of zinc in biota is a small reservoir compared to that in soil, sediment, or water.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** High concentrations of zinc have been shown to be detrimental to aquatic life.

---

### **13. DISPOSAL CONSIDERATIONS**

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations.

**EPA WASTE NUMBER:** As shipped, Nulx Liquid Zinc 10 is not defined as an EPA hazardous waste per July 1, 1996 revision of 40 CFR section 261, Subpart C or Subpart D.

## **14. TRANSPORTATION INFORMATION**

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION**

**PROPER SHIPPING NAME:** ENVIRONMENTALLY HAZARDOUS SUBSTANCES,  
LIQUID, N.O.S., (CONTAINS AMMONIA, ZINC  
CHLORIDE AND ZINC SULFATE)  
**HAZARD CLASS NUMBER AND DESCRIPTION:** 9  
**UN IDENTIFICATION NUMBER:** UN3082  
**PACKING GROUP:** III  
**DOT LABEL(S) REQUIRED:** CLASS 9  
**EMERGENCY RESPONSE GUIDE NUMBER:** 171 (1996 North American Emergency Response  
Guidebook)  
**RQ:** 1000 lbs/ 454 kg

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## **15. REGULATORY INFORMATION**

**SARA REPORTING REQUIREMENTS:** This material contains the following toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372:

| NAME               | CAS NO.   | %, WT |
|--------------------|-----------|-------|
| AMMONIUM HYDROXIDE | 1336-21-6 | 38-54 |
| ZINC CHLORIDE      | 7646-85-7 | 0-21  |
| ZINC SULFATE       | 7733-02-0 | 0-25  |

**TSCA INVENTORY STATUS:** The above chemicals are also listed on the TSCA Inventory.

**MARINE POLLUTANT:** This product contains no component listed as a Marine Pollutant under 49 CFR 172.101, Appendix B.

**CALIFORNIA PROPOSITION 65:** Unavailable

**CERCLA REPORTABLE QUANTITIES (RQ):** 1000 pounds

**STATE REGULATORY INFORMATION:** Unavailable

**LABELING (Precautionary Statements):** DANGER! May cause severe burns to eyes and irritate skin. Avoid contact with skin and eyes. Do not ingest. Avoid breathing mists and sprays. Wear gloves and safety goggles. Work in well ventilated area.

---

## **16. OTHER INFORMATION**

The information and recommendations herein are taken from data contained in independent, industry recognized references including, NIOSH, OSHA, ANSI, and NFPA. This information is furnished free of charge and is based on data believed to be reliable. It is intended for use by persons possessing technical knowledge at their own discretion and risk. Since actual use is beyond our control, no guarantee, express or implied, and no liability is assumed by Nutra-Flo Company in conjunction with the use of this information. Nothing herein is to be construed as a recommendation to infringe any patents.



# MATERIAL SAFETY DATA SHEET

## PART 1

*What is the material and what do I need to know in an emergency?*

### 1. PRODUCT IDENTIFICATION

**TRADE NAME (AS LABELED):**

**NUFLUX**

**MANUFACTURER'S NAME:**

Nutra-Flo Company

**ADDRESS:**

1919 Grand Avenue

Sioux City, IA 51107

**EMERGENCY PHONE:**

Chemtrec 1-800-424-9300 24 hrs a day

**BUSINESS PHONE:**

712-277-2011

**DATE OF PREPARATION:**

Jan 20, 1997

### 2. COMPOSITION and INFORMATION ON INGREDIENTS

| CHEMICAL NAME                           | CAS #      | % w/w   | EXPOSURE LIMITS IN AIR          |                           |                          |                           |                           |                     |
|-----------------------------------------|------------|---------|---------------------------------|---------------------------|--------------------------|---------------------------|---------------------------|---------------------|
|                                         |            |         | ACGIH                           |                           | OSHA                     |                           |                           | NIOSH<br>REL<br>ppm |
|                                         |            |         | TLV<br>TWA<br>mg/m <sup>3</sup> | STEL<br>mg/m <sup>3</sup> | PEL<br>mg/m <sup>3</sup> | STEL<br>mg/m <sup>3</sup> | IDLH<br>mg/m <sup>3</sup> |                     |
| Zinc Chloride<br>ZnCl <sub>2</sub>      | 7646-85-7  | 10-21%  | 1<br>(fume)                     | 2<br>(fume)               | 1<br>(fume)              | 2<br>(fume)               | NE*                       | NA*                 |
| Ammonium Chloride<br>NH <sub>4</sub> Cl | 12125-02-9 | 10-21%  | 10<br>(fume)                    | 20<br>(fume)              | 10<br>(fume)             | 20<br>(fume)              | NA*                       | NA*                 |
| Water<br>H <sub>2</sub> O               | 7732-18-5  | Balance | None                            | None                      | None                     | None                      | None                      |                     |
|                                         |            |         |                                 |                           |                          |                           |                           |                     |

NE\*=NOT ESTABLISHED

NA\*= NOT AVAILABLE

### 3. HAZARD IDENTIFICATION

#### EMERGENCY OVERVIEW:

#### HAZARDOUS MATERIAL INFORMATION SYSTEM

##### NFPA HAZARD RATING

LEAST: 0 SLIGHT: 1 MODERATE: 2 HIGH: 3 EXTREME: 4

#### SYMPTOMS OF OVER EXPOSURE BY ROUTE OF EXPOSURE:

**INHALATION:** ACUTE: Zinc Chloride has shown human systemic effects by inhalation: pulmonary changes. Exposure to Zinc Chloride fumes or dusts can cause dermatitis, boils, conjunctivitis, and gastrointestinal tract upsets. The fumes are highly toxic.

**CONTACT WITH SKIN or EYES:** EYES: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. SKIN: Prolonged or repeated exposure may cause severe skin burns.

**SKIN ABSORPTION:** None of the ingredients are known to be skin absorbing agents.

**HEALTH** (BLUE) **2**

**FLAMMABILITY** (RED) **0**

**REACTIVITY** (YELLOW) **0**

#### PROTECTIVE EQUIPMENT

| EYES                               | RESPIRATORY      | HANDS            | BODY             |
|------------------------------------|------------------|------------------|------------------|
| SEE<br>SECTION 8                   | SEE<br>SECTION 8 | SEE<br>SECTION 8 | SEE<br>SECTION 8 |
| For Routine Industrial Application |                  |                  |                  |

**INGESTION:** Zinc Chloride and Ammonium Chloride are human poisons by ingestion.

**INJECTION:** Zinc Chloride and Ammonium Chloride are poisons by subcutaneous, intravenous and intraperitoneal routes.

#### HEALTH EFFECTS OR RISKS FROM EXPOSURE (An explanation in lay terms).

**ACUTE:** Redness or irritation of the tissue which had contact with the product (skin, eyes, mucus membranes) can occur. Ingestion can lead to stomach aches and nausea.

**CHRONIC:** Stomach pains, vomiting, diarrhea, lung irritation, chest pains and edema can occur. Animal studies of zinc compounds indicate that there are potentially adverse effects on the reproductive system and developing fetuses.

## PART II

*What should I do if a hazardous situation occurs?*

### 4. FIRST-AID MEASURES

**IF INHALED:** Remove to fresh air. Give artificial respiration if victim is not breathing. Provide oxygen. Use bronchial dilant and decongestant, if indicated. Give cortisone for pneumonia. Get immediate medical attention.

**IN CASE OF EYE CONTACT:** Immediately flush eyes with running water for 30 minutes, lifting the upper and lower eyelids occasionally. Get immediate medical attention.

**IN CASE OF SKIN CONTACT:** Immediately flush skin with running water for 30 minutes. Remove contaminated clothing and shoes, wash before reuse. Get immediate medical attention.

**IN CASE OF INGESTION:** CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. Gastric lavage (stomach wash) with 5% sodium bicarbonate solution; take care not to perforate the gastrointestinal tract; follow by demulcent. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. Get immediate medical attention.

Claims of chemical exposure and all rescuers must be taken for medical attention. Take copy of label and MSDS to physician or health professional with victim.

---

## 5. FIRE-FIGHTING MEASURES

FLASH POINT, °C (method): NA  
AUTOIGNITION TEMPERATURE, °C: NA  
FLAMMABLE LIMITS (in air by volume, %): NA

### FIRE EXTINGUISHING MATERIALS:

|                     |     |                        |     |               |     |
|---------------------|-----|------------------------|-----|---------------|-----|
| <u>Water Spray:</u> | XXX | <u>Carbon Dioxide:</u> | XXX |               |     |
| <u>Foam:</u>        | XXX | <u>Dry Chemical:</u>   | XXX | <u>Halon:</u> | XXX |

SPECIAL FIRE FIGHTING PROCEDURES: As appropriate for surrounding materials.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When heated to decomposition, this product will emit toxic fumes containing ammonia, nitrogen oxides, chloride compounds, and zinc oxide. Ammonia vapors in the range of 15-28 percent can explode on contact with a source of ignition..

---

## 6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: For small or incidental releases, the minimum personal protective equipment should be rubber gloves, rubber apron, chemical goggles. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. For large spills, contain by diking with soil or other non-combustible absorbent material. Keep material out of sewers, storm drains, and surface waters. Comply with all applicable governmental regulations on spill reporting, handling, and disposal of waste.

---

## PART III *How can I prevent hazardous situations from occurring?*

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## 7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: Avoid getting chemicals ON YOU or IN YOU. Wash hands after handling chemicals. Do not eat or drink while handling chemicals.

STORAGE AND HANDLING PRACTICES: Store in a cool, dry, well-ventilated area away from incompatible materials. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Flush equipment thoroughly with water before beginning maintenance operations.

---

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to keep concentrations below applicable standards.  
RESPIRATORY PROTECTION: If use conditions generate vapors or mists, wear a NIOSH-Approved respirator appropriate for those emission levels.

EYE PROTECTION: Chemical goggles and full faceshield unless a full facepiece respirator is also worn. It is generally recognized that contact lenses should not be worn when working with chemicals because contact lenses may contribute to the severity of an eye injury.

HAND PROTECTION: Rubber gloves with gauntlets.

**BODY PROTECTION:** Use body protection appropriate for task. Chemical resistant cover-alls, rubber aprons or chemical protective clothing made from rubber are generally acceptable, depending upon the task.

**OTHER PROTECTIVE MEASURES:** An eyewash and safety shower should be nearby and ready for use.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                                                        |                       |                                     |                                                    |
|------------------------------------------------------------------------|-----------------------|-------------------------------------|----------------------------------------------------|
| <b>VAPOR DENSITY:</b> Air=1.00                                         | <b>vapor is water</b> | <b>EVAPORATION RATE (n-BuAc=1):</b> | <b>Unknown</b>                                     |
| <b>SPECIFIC GRAVITY:</b> gms/cm <sup>3</sup> Water =1.000              | <b>1.100-1.250</b>    | <b>MELTING POINT or RANGE:</b>      | <b>Solution freezing point is approx 15 deg F.</b> |
| <b>SOLUBILITY IN WATER:</b>                                            | <b>100 %</b>          | <b>BOILING POINT:</b>               | <b>212 deg F., 100 deg C.</b>                      |
| <b>VAPOR PRESSURE, mm Hg @ 25°C:</b>                                   | <b>NA</b>             | <b>pH:</b>                          | <b>4.5</b>                                         |
| <b>APPEARANCE AND COLOR:</b> Clear, water-white solution with no odor. |                       |                                     |                                                    |

**HOW TO DETECT THIS SUBSTANCE (warning properties):** NA

---

## 10. STABILITY AND REACTIVITY

**STABILITY:** Stable

**CONDITIONS TO AVOID:**

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Copper or aluminum alloys

**HAZARDOUS POLYMERIZATION:** Will not occur

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## PART IV *Is there any other useful information about this material?*

---

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** Zinc Chloride: LD50 orl-rat=350 mg/kg  
Ammonium Chloride LD50 orl-rat=1650 mg/kg

**SUSPECTED CANCER AGENT:** NO

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Inhalation exposure will aggravate pre-existing respiratory ailments, Skin contact may aggravate pre-existing dermatitis

**Dermal Exposure:** Reddening and irritation. Severe irritant to eyes.

**Ingestion Exposure:** Nausea and stomach pains.

**Inhalation Exposure:** Irritation of nose and throat.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms.

---

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** Zinc is stable in the environment. Its transport in the environment depends upon the exact compound, the pH, the soil type, and the salinity- All work practices should be aimed at eliminating environmental contamination.

**EFFECT OF MATERIAL ON PLANTS OR ANIMALS:** Animal studies have shown that zinc chloride and zinc sulfate are poisons by ingestion, intravenous, subcutaneous, and intraperitoneal routes. Zinc has been shown to bioaccumulate, though the amount of zinc in biota small reservoir compared to that in soil, sediment, or water.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** High concentrations of zinc have been shown to be detrimental to aquatic life.

---

### 13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations.  
EPA WASTE NUMBER:

### 14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME:

OTHER REGULATED SUBSTANCES, LIQUID N.O.S.  
(CONTAINS ZINC AMMONIUM CHLORIDE 40%)

HAZARD CLASS NUMBER AND DESCRIPTION:

CLASS 9

UN IDENTIFICATION NUMBER:

UN 3082

PACKING GROUP:

III

DOT LABEL(S) REQUIRED:

NONE

EMERGENCY RESPONSE GUIDE NUMBER:

RO:

1000 lbs/ 454 kg ( as Zinc Ammonium Chloride)

### 15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: This material contains the following toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372:

| NAME          | CAS NO.   | %, WT |
|---------------|-----------|-------|
| ZINC CHLORIDE | 7646-85-7 | 10-21 |

TSCA INVENTORY STATUS: Zinc Chloride and Ammonium Chloride are on the TSCA Inventory.

MARINE POLLUTANT: This product contains no component listed as a Marine Pollutant under 49 CFR 172.101, Appendix B.

CALIFORNIA PREPOSITION 65:

CERCLA REPORTABLE QUANTITIES (RQ): 1000 lbs (as Zinc Ammonium Chloride)

STATE REGULATORY INFORMATION:

List States:

LABELING (Precautionary Statements): **DANGER!** Causes severe burns to skin and eyes. Avoid contact with skin and eyes. Do not ingest.. Avoid breathing mists and sprays. Wear gloves and safety goggles. Work in well ventilated area.



## 16. OTHER INFORMATION

PREPARED BY:

The information and recommendations herein are taken from data contained in independent, industry recognized references including, NIOSH, OSHA, ANSI , and NFPA. This information is furnished free of charge and is based on data believed to be reliable. It is intended for use by persons possessing technical knowledge at their own discretion and risk. Since actual use is beyond our control, no guarantee, express or implied, and no liability is assumed by Nutra-Flo Company in conjunction with the use of this information. Nothing herein is to be construed as a recommendation to infringe any patents.



Report Number  
98-203-2002

13611 "B" Street • Omaha, Nebraska 68144-3693 • (402) 334-7770 • FAX (402) 334-9121

## REPORT OF ANALYSIS

For: (12552) NUTRA FLO  
(712)277-2011

Date Reported: 07/21/98  
Date Received: 06/29/98  
Date Sampled: 06/26/98

### Mail to:

NUTRA FLO  
1919 GRAND AVENUE  
SIOUX CITY IA 51106-5708

NUTLEX 20% GRANULES

Zinc (Pb) sulfate

Lab number: 406394 Sample ID: LAB NO 2074

| Analysis        | Level Found | Units | Detection Limit | Method   | Analyst-Date |
|-----------------|-------------|-------|-----------------|----------|--------------|
| Arsenic (TCLP)  | n.d.        | mg/L  | 5               | EPA 6010 | jmr-07/21    |
| Barium (TCLP)   | 0.12        | mg/L  | 0.05            | EPA 6010 | jmr-07/21    |
| Mercury (TCLP)  | n.d.        | mg/L  | 0.05            | EPA 7470 | cah-07/21    |
| Selenium (TCLP) | n.d.        | mg/L  | 1.0             | EPA 6010 | jmr-07/21    |
| Silver (TCLP)   | n.d.        | mg/L  | 0.1             | EPA 6010 | jmr-07/21    |
| Chromium (TCLP) | 0.3         | mg/L  | 0.1             | EPA 6010 | jmr-07/21    |
| Lead (TCLP)     | n.d.        | mg/L  | 0.5             | EPA 6010 | jmr-07/21    |
| Cadmium (TCLP)  | 0.50        | mg/L  | 0.05            | EPA 6010 | jmr-07/21    |
| Nickel (TCLP)   | 0.5         | mg/L  | 0.1             | EPA 6010 | jmr-07/21    |
| Copper (TCLP)   | n.d.        | mg/L  | 0.1             | EPA 6010 | jmr-07/21    |
| Zinc (TCLP)     | 5,537       | mg/L  | 0.1             | EPA 6010 | jmr-07/21    |

### Notes:

n.d. - Not Detected.  
Report faxed upon completion.

Respectfully Submitted

*Heather Ramig*  
Heather Ramig  
Client Services

The above analytical results apply only to the sample(s) submitted.

Our reports and letters are for the exclusive and confidential use of our clients and may not be reproduced in whole or in part, nor may any reference be made to the work, the results, or the company in any advertising, news release, or other public announcements without obtaining our prior written authorization.

NUTRA-FLO COMPANY  
2717 PORT NEAL CIRCLE  
SERGEANT BLUFF, Iowa. 51054

CERTIFICATE OF RAW MATERIAL SUBSTITUTION

I, Terry Robinson, Port Neal Plant Manager of Nutra-Flo Co. hereby certify based on laboratory analysis that (material) \_\_\_\_\_ generated by \_\_\_\_\_ is an acceptable substitution for the raw materials currently being used to manufacture our liquid zinc micro nutrient fertilizer and or feed grade zinc/iron sulfate micronutrient.

I further certify that after receiving this material, all of it will be used in the manufacture of fertilizer and or feed grade zinc/iron sulfate micronutrient, not be disposed of or intentionally released to the environment. Terry Robinson \_\_\_\_\_

STATE OF IOWA                                 )  
                                                              ) SS:  
COUNTY OF WOODBURY                     )

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, by the above named \_\_\_\_\_ known person whose name and signature appear above.

\_\_\_\_\_  
Notary Public in and for the State of Iowa

(Seal)

My commission expires the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

Generator Address. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_

Being the generator of the above mentioned co-product or secondary material, our company does believe to the best of our knowledge and ability, that this material is not a waste. This material contains valuable ingredients needed for the manufacture of fertilizer and feed grade micronutrients. This material is sold to Nutra-Flo Company for the single purpose as a raw material substitute.

Furthermore our company, has made specific changes in the chemistry and or physical nature of the material to enhance the value of this co-product so that it can be used as an effective substitute for comparable commercial products.

Generator Representative \_\_\_\_\_  
(Signature)



Activity #: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

DRIVE-BY WORKSHEET

1. Arrival time: \_\_\_\_\_
2. Drive-by conducted from public right-of-way? ☒ YES ☐ NO
3. Determine the direction "North" with respect to the facility and provide a brief sketch of the layout and orientation (as can be viewed from the public right-of-way)

→ N



4. Obvious concerns visible from public right-of-way? ☒ YES ☐ NO  
(Note area(s) of concern)

☒ Containers☒ Tanks☐ Processing Equipment☐ Loading Areas☐ Unloading Areas☐ Security Devices☐ Open Drums☐ Stressed Vegetation☐ Unusual Staining☐ Unusual Odors☐ Obvious Discharges☐ Improper Disposal☐ Safety Concerns☐ Other Concerns

5. Notes/Observations: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Photo's Taken? ☐ YES ☒ NOPhoto Numbers: \_\_\_\_\_  
(note location/direction on sketch)**DOCUMENTATION:**HOW are the facts known?  
HOW long did it happen?WHO said what? WHEN did it happen?  
and WHAT PROOF WAS OBTAINED?

**SITE ENTRY AND INBRIEFING WORKSHEET**

## 1. Initial entry procedures:

☒ Used main entrance☒ Entered during normal operating hours2. Facility Representative(s): Holly Ashley

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

3. Does the facility representative(s) have intimate knowledge of all aspects of the waste generation and management practices? ☒ YES ☐ NO  
(How was this verified?)

## 4. How long has facility representative worked in their position? \_\_\_\_\_

5. Were unreasonable or excessive delays encountered (>15 minutes): ☐ YES ☒ NO

## 6. Introduction:

☒ Presented credentials☒ Verified presence at correct facility (checked address/I.D. #)☒ Explained authority to conduct inspection (Section 3007 of RCRA)☒ Explained the purpose, scope, and order of the inspection☐ Explained documentation process through the use of worksheets, checklists, photo's, notes, statements, etc.☒ Explained EPA's need to collect and the facilities responsibility to provide accurate information and provided copies of Section 1001 and 1002 U.S.C. to facility☒ Explained facility's right to claim CBI and provided <sup>forms at end of insp</sup> pages 1 and 2 of CBI form for signatures☒ Identified personal safety considerations: \_\_\_\_\_☐ Explained that findings and observations are based on your current knowledge of RCRA and that the final findings may differ7. Was full access granted? ☒ YES By who? (name): Ms. Ashley☐ NO Obtain name of person denying access, time of denial, reason for denial, or note limitations placed on access: \_\_\_\_\_

|                |                          |                              |                     |
|----------------|--------------------------|------------------------------|---------------------|
| DOCUMENTATION: | HOW are the facts known? | WHO said what?               | WHEN did it happen? |
|                | HOW long did it happen?  | and WHAT PROOF WAS OBTAINED? |                     |

Activity #: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

**FACILITY BACKGROUND WORKSHEET**

*See report*

**1. Site history:**

Date facility began operating: \_\_\_\_\_

Number of employees: \_\_\_\_\_

Number of shifts/hours worked: \_\_\_\_\_

Number of days worked per week: \_\_\_\_\_

Size (sq. ft., how divided): \_\_\_\_\_

Property owner and facility operator the same? ☐ YES ☐ NO

**2. Major products or services provided:**

**3. Major raw materials used:**

**4. Major manufacturing or processing operations which generate waste streams:  
(provide brief description)**

Operation

Waste Stream(s)

5. Complete a Generator Waste Stream Worksheet and/or Off-Site Waste Stream Worksheet for the waste streams noted above and then finish this form.

Activity #: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

6. Verified/compared above information with facility Notification Form: ☐ YES ☐ NO*Non-notified*

7. GENERATOR STATUS: ☒ CE (0-100kg/mo) ☐ SQG (100-1000kg/mo) ☐ LQG (>1000kg/mo)  
 (based on records review)

Is facility's status solidly within above category? ☐ YES ☐ NO  
 (If not carefully verify status and document)

8. TSD STATUS: ☐ Treatment ☐ Storage ☐ Disposal

Note: Types of units, number of units, capacities, processes, etc.

*Collected Samples**see report*

9. Resolved questions from Pre-Inspection Worksheet? ☒ YES ☐ NO ☐ No Questions

10. Resolved compliance officers questions from Pre-Inspection Worksheet? ☒ YES ☐ NO ☐ No Questions

11. Requested site map or diagram to identify all observations? ☒ YES ☐ None available

DOCUMENTATION: HOW are the facts known? WHO said what? WHEN did it happen?  
 HOW long did it happen? and WHAT PROOF WAS OBTAINED?

Activity #: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

GENERATOR WASTE STREAM WORKSHEET*see report*

1. Name of waste stream: \_\_\_\_\_

2. Waste stream generation process: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Amount and frequency of waste stream generation (note amount per \_\_\_\_):

\_\_\_\_ Gallons      \_\_\_\_ Pounds      per      ☐ Day      ☐ Week      ☐ Month☐ Other : \_\_\_\_\_☐ Unknown: \_\_\_\_\_

Formulas/Calculations: \_\_\_\_\_

4. On-site management practices (check all that apply):

☐ Satellite Accumulation      ☐ Container Storage      ☐ Tank Storage☐ Treatment      ☐ Disposal      ☐ OtherStated storage times (days):    ☐ <90    ☐ <180    ☐ <270    ☐ I.S./Permit

5. Off-site management activities:

Shipped to: \_\_\_\_\_

Frequency of shipments: \_\_\_\_\_

Transporter: \_\_\_\_\_

Ultimate disposition of waste:    ☐ Known    ☒ Unknown

6. Number of years/months facility generated this waste: From: \_\_\_\_\_ To: \_\_\_\_\_

7. Were there any changes (over time) in the type(s) of waste generated from this process and/or in the management of this waste?

☐ YES      ☐ NO8. Facility considers this waste to be:    ☐ Hazardous    ☐ Non-Hazardous9. Method of waste determination/identification:      ☐ Not completed by facility  
(check all that apply)☐ By product knowledge  
(MSDS, other info)☐ By process knowledge  
(use of material)☐ By testing  
(test results)

Activity #: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

10. EPA waste codes identified by facility: \_\_\_\_\_

11. Were non-hazardous waste determinations adequate? ☐ YES ☐ NO

12. Were hazardous waste determination adequate? ☐ YES ☐ NO  
(includes LDR and analysis for on-site treatment)

13. Waste determination made by inspector? ☐ YES ☐ NO

(Remember to obtained proof to support your waste determinations)

14. Copies of waste determination obtained if necessary? ☐ YES ☐ NO

15. Is waste stream consistent with generator Notification? ☐ YES ☐ NO

16. Notes/Observations: \_\_\_\_\_

////////////////////  
VISUAL VERIFICATION SECTION

17. Are waste generation processes the same as previously described?: ☐ YES ☐ NO

18. Do the EPA waste codes appear correct? ☐ YES ☐ NO  
(If no, list apparent codes & provide supporting information)

20. Notes/Observations: \_\_\_\_\_

////////////////////  
**DOCUMENTATION:**    **HOW** are the facts known?    **WHO** said what?    **WHEN** did it happen?  
                                 **HOW** long did it happen?    and **WHAT PROOF WAS OBTAINED?**

Activity #: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

OFF-SITE WASTE STREAM WORKSHEET - TSD's ONLY*see report*

1. Name or type of waste stream(s): \_\_\_\_\_
2. Amount and frequency received (note amount per \_\_\_\_):  
\_\_\_\_ Gallons \_\_\_\_ Pounds \_\_\_\_ Tons per ☐ Day ☐ Month ☐ Month ☐ Year  
☐ Other: \_\_\_\_\_
3. On-site management practices (check all that apply):  
☐ Container Storage ☐ Tank Storage ☐ Treatment  
☐ Disposal ☐ Other: \_\_\_\_\_
4. Off-site management activities: ☐ N/A  
Shipped to: \_\_\_\_\_  
Frequency of shipments: \_\_\_\_\_  
Transporter: \_\_\_\_\_  
Ultimate disposition of waste: ☐ Known ☐ Unknown
6. Number or years/months facility managed this waste: From: \_\_\_\_\_ To: \_\_\_\_\_
7. Facility considers this waste to be: ☐ Hazardous ☐ Non-Hazardous
8. Method of waste determination/identification: ☐ Not completed by facility  
(check all that apply)  
☐ By generator supplied information ☐ By testing
9. EPA waste codes \_\_\_\_\_
10. Is waste stream consistent with generator Notification? ☐ YES ☐ NO
16. Notes/Observations: \_\_\_\_\_

DOCUMENTATION: HOW are the facts known? WHO said what? WHEN did it happen?  
HOW long did it happen? and WHAT PROOF WAS OBTAINED?

Activity #: \_\_\_\_\_

Facility Status: ☐ SQG ☐ LQG ☐ I.S./P

Page \_\_\_\_ of \_\_\_\_

EXIT BRIEFING WORKSHEET

## 1. Initial procedures:

- ☒ Reviewed all data collection worksheets, checklists, field notes, and collected documents to ensure that all necessary information has been collected and documented. This review included the following:

- Documentation of the location of the violation, the type and amount of waste involved, the duration or time frame of the violation, the specific dates when the violation first started occurring, and the number of times or frequency that the same violation was found at the facility.

- Documentation regarding illegal waste management units, including: information about the units location (diagram/picture), its dimensions, its conditions, the construction material, the gradient of the base (for spills), and all other relevant information.

- Documentation regarding illegal disposal situations, including: information about each occurrence, eg. where the waste was sent or disposed of, how it was shipped, who shipped it, when it was shipped or disposed of, how much was shipped or disposed of, how the waste was managed at the disposal site (land disposed, burned, etc.).

- ☒ Identified/verified violations from previous inspection were corrected (if applicable)

Note additional information needed and/or questions for facility representative(s):

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- ☐ Prepared Notice of Violation (NOV) form, if applicable

- ☐ Prepared Document Receipt form

- ☐ Pollution Prevention Checklist completed

- ☒ Multi-Media screening completed, media(s): \_\_\_\_\_

## 2. Exit Briefing:

- ☐ Addressed all unresolved inspection related issues

- ☒ Provided facility with Document Receipt

- ☐ Provided facility with Page 3 of CBI form (only if facility makes a CBI claim)

- ☐ Explained that the findings and observations resulting from the inspection were based on your current knowledge of RCRA and that the final findings may differ

- ☐ Explained that the compliance officer will make the final compliance decisions regarding the findings and observations of the inspection and that all compliance related questions should be directed toward them

- ☐ Explained that any recommendations provided during the inspection are for informational purposes only and **DO NOT** require specific actions by the facility

- ☐ Summarized the findings and observations for the facility representatives

Notes \_\_\_\_\_



Activity #: \_\_\_\_\_ Facility Status: ☐ SQG ☐ LQG ☐ I.S./P Page \_\_\_\_ of \_\_\_\_3. Notice of Violation prepared and issued? ☒ YES ☐ NO (If yes complete below)☒ All violations were clearly identified and explained, including: the circumstances, location, and the applicable regulations☒ Explained the importance of a timely and adequate response4. Specific information requested from facility? ☐ YES ☐ NO  
(Note: Request all information in writing and copy)

List information to be submitted to EPA: \_\_\_\_\_

5. Actions facility representatives said they would take as a result of the inspection:  
(Note who made these statements) ☐ YES ☐ NO6. Facility appears to have awareness of RCRA regulations and/or has its own environmental staff? ☒ YES ☐ NO  
*M. J. King*7. Facility appears to have little to no knowledge of RCRA? ☐ YES ☐ NO8. Facility has copy of applicable regulations? ☐ YES ☐ NO9. Note attitude and demeanor of facility representative(s) if applicable: ☐ N/A

|                |                          |                              |                     |
|----------------|--------------------------|------------------------------|---------------------|
| DOCUMENTATION: | HOW are the facts known? | WHO said what?               | WHEN did it happen? |
|                | HOW long did it happen?  | and WHAT PROOF WAS OBTAINED? |                     |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENTAL SERVICES DIVISION  
REGION 7  
25 FUNSTON ROAD  
KANSAS CITY, KANSAS 66115

JAN 22 1998

MEMORANDUM

SUBJECT: Approval of QAPP for RCRA Compliance Sampling at  
Fertilizer Manufacturers

FROM: Ernest L. Arnold *Enil*  
Region 7 Quality Assurance Manager

TO: Dedriel Newsome  
QAPP Coordinator, ARCM/ENSV

The Quality Assurance Project Plan (QAPP) for RCRA Compliance Sampling at fertilizer manufacturers dated January 15, 1998, that we received from you on January 16, 1998, has been reviewed for adequacy and completeness in accordance with EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations, EPA QA/R-5.

Although the document satisfactorily addressed most of the key issues, a minor deficiency was noted. This deficiency does not have a direct impact on the quality of the data, but is noteworthy of pointing out for the record. In the Sample Summary Table on page 18 and Appendix B, the analytical method for mercury, 7471, was not included although the Analytical Services Request form specifies mercury.

If you have any questions, please call me at 551-5194 or Bob Dona at 551-5182.

Attachment

QAO Document No. 98089

QAO Activity No. QQN56

Quality Assurance Project Plan  
for  
RCRA Compliance Sampling  
at  
Fertilizer Manufacturers

Prepared By  
Dedriel Newsome  
January 1998

Dedriel Newsome

Dedriel Newsome, QAPP Coordinator

1/15/98  
Date

Mary Tietjen Mindrup

Mary Tietjen-Mindrup, ARCM Manager

1/16/98  
Date

Ernie Arnold

Ernie Arnold, Regional QA Manager

1/22/98  
Date

R7 QA Office  
Rec'd JAN 16 1998  
By RBD

98089  
aqa56

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### Appendix A

Analytical Services/Supplies Request Form  
Full Sampling Equipment and Supplies List

### Appendix B

Sample Summary Table

### Appendix C

Heavy Metals Safety Information

## A. Project Management

### A1. Distribution List

EPA Region VII: Dedriel Newsome, QAPP Coordinator  
ARCM RCRA Inspectors  
Cynthia Hutchison, ARTD/RPCB  
Brian Mitchell, ARTD/IRSP  
Mary Tietjen-Mindrup, ARCM Manager  
Ernie Arnold, Regional QA Manager  
Andrea Jirka, RLAB Manager

### A2. Project/Task Organization

The individuals directly involved with these sampling projects and their specific responsibilities are outlined below:

Dedriel Newsome - Responsible for the development and implementation of this QAPP. This includes the regular review of ongoing and completed projects under this QAPP to ensure that it is followed. If needed, also responsible for the revision of this QAPP to accommodate unforeseen or changed field situations, as well as any changed project data needs.

ARCM RCRA Inspectors - Will serve as project managers for these sampling projects (one individual per sampling project). As project managers, they will direct, coordinate and implement the field activities. They will also implement, perform and coordinate sampling operations. In addition, the project manager will review, document and ensure that the sampling activity is conducted in accordance with this QAPP. The project manager will ensure QAPP implementation and document any deviations from this QAPP. The project manager will also participate in the sample collection process, with the additional assistance of one or more ARCM RCRA Inspectors and/or contractors. These individuals will be designated as project assistants.

Project Assistants - Will assist the project manager during the collection and documentation of samples. Each project assistant will also be familiar with this QAPP and all available site information, including the potential hazards at the site.

Cynthia Hutchison and Brian Mitchell - Responsible for the review of this QAPP to ensure that it meets the data needs of the Regional RCRA compliance program. Also responsible for providing available site specific information prior to each sampling project, and for informing the ARCM Manager and/or the QAPP Coordinator of any changed project data needs.

Mary Tietjen-Mindrup, ARCM Manager - Responsible for the overall coordination and decisions for the sampling projects and for assigning project managers. Reviews and approves this QAPP and any subsequent revisions in terms of expanding or limiting the project scope and objective.

Ernie Arnold, Regional QA Manager - Responsible for the review and approval of this QAPP and any subsequent revisions in terms of quality assurance aspects.

Andrea Jirka, RLAB Manager - Responsible for the coordination and scheduling of lab analyses, data review and data validation.

### A3. Problem Definition/Background

During FY98, EPA Region VII will be conducting compliance evaluation inspections (CEIs), including sampling as a component, at approximately 8 fertilizer manufacturers in the four States of Iowa, Kansas, Missouri and Nebraska. Many of these manufacturers may not have notified EPA and/or the authorized state that they generate regulated quantities of hazardous waste, and little to no file information is available for these facilities. The purpose of these inspections is to obtain independent evaluations of the facilities' compliance with RCRA. In particular, EPA will be focusing on the validity of the facilities' hazardous waste determinations, the appropriateness of the facilities' management practices with regard to their fertilizer manufacturing waste streams, and the environmental impact of their waste management practices.

The primary focus of these inspections will be micro-nutrient type fertilizer manufacturers, although other types of fertilizers may also be inspected. A variety of process operations (although blending and mixing may be the most common) may be encountered during these inspections, as well as a variety

of raw materials. Raw materials could consist of wastes received from generators of metal type waste such as foundry emission control sludge and galvanizing waste. Wastes that are typically generated at fertilizer manufacturers include emission control sludge (both dry and wet) and fertilizer by-products.

A variety of waste management practices will also be encountered, including storage (containers and waste piles), recycling and both on-site and off-site disposal. Areas of spillage are also likely to be found during these inspections.

All of the fertilizer manufacturing waste streams are suspected to contain heavy metals (particularly cadmium, lead and chrome). Cadmium, lead and chrome are listed in the RCRA regulations as hazardous constituents. Even though some of the fertilizer manufacturers may have analyzed some or all of their waste streams at some time in the past, sampling is still necessary to ensure the accuracy of their waste determinations due to variations in feedstock and to ensure that determinations have been made on fully representative samples.

#### A4. Project/Task Description

The purpose of these sampling projects is to determine whether (1) the facility is in compliance with RCRA, (2) the facility is not in compliance with RCRA, which will require compliance/enforcement response to return the facility to compliance, or (3) the facility must further monitor and analyze its waste streams, waste management units and/or soils and groundwater.

Samples will be collected of fertilizer manufacturing waste streams at each facility. These samples will be analyzed for TCLP Metals. Any waste exceeding the regulatory threshold is classified as a hazardous waste. Waste samples will not be collected only for those wastes which have already been classified as hazardous by the facility, based on sample testing that the facility certifies is both current and based on representative sampling. Waste samples will also be collected of any materials spilled onto the ground at waste management areas, and of any wastes being managed by land application (e.g. waste piles) at the facility. If a waste pile is sampled, samples should be collected (if possible to determine) from both the most recent and the oldest portions of the pile.

Soil samples will be collected from under any area of spills and land application (e.g. waste piles). These samples will be analyzed for Total Metals (RCRA TCLP metals only) and TCLP Metals (only if one or more of the Total Metals concentrations exceed the regulatory threshold by a factor of 20). This sampling will be conducted to determine if any hazardous constituents and/or waste have been released on-site, and to determine if the soil itself has been contaminated to such a level that it requires management as a hazardous waste. A background soil sample will be collected from a nearby unaffected area (such as a non-adjacent public park) and analyzed for Total Metals (RCRA TCLP metals only).

These sampling projects are scheduled to begin during the second quarter of FY98, and will be conducted throughout the remainder of the fiscal year. Samples will be delivered to the EPA laboratory upon return from the sampling project (more than one sampling project may be conducted during a trip).

#### A5. Quality Objectives and Criteria for Measurement Data

The project data quality objective is to provide valid data of known and acceptable quality for the waste streams and the soils. Waste sample data will be compared to the regulatory threshold for TCLP Metals. Any waste that exceeds this level is classified as a hazardous waste. Soil sample data will be compared against the background sample data. A release will be deemed to have occurred if the soil sample exceeds background levels by more than a factor of two, assuming reasonable background levels. A background sample is reasonable if it does not exceed the soil actions levels established by EPA Region III.

A sample summary table which includes the location and type of each sample, sample matrix, estimated number of samples, container type, preservation method, constituents of interest, analytical method, and level of interest is included as Appendix B. The data quality indicators to be measured are identified below.

The goals for analytical precision and accuracy are described in R7 ENSV SOPs. The acceptance limit for the precision assessed via field duplicate samples can be found in the R7 ENSV LAST QCSUM report.



There will be no field measurements taken during this sampling activity.

There will be no trip blanks or rinsate blanks collected as only heavy metals will be analyzed and dedicated sampling equipment will be used.

Representativeness will not be an issue during the waste sampling as worst-case conditions are being determined, these worst-case conditions being that portions of the waste stream sampled would be a hazardous waste. Therefore, samples will be collected from visually contaminated areas or areas most likely to contain the hazardous constituents of concern.

Representativeness will also not be an issue during the surface soil sampling as the data will be used to identify the presence and not the extent of the hazardous constituents of concern.

Comparability will be addressed by collecting, analyzing, and reporting the data as described in this document. Analytical results for TCLP should be in mg/L and the results for totals in mg/Kg.

The completeness of the project will be assessed by comparing the number of sample results to the number of samples submitted for analysis. The completeness goal is 100%.

#### A6. Special Training Requirements/Certification

Prior to conducting this sampling activity, each inspector will have completed at a minimum the following training:

- a. Hazardous Waste Operations (HAZWOPER) (40 hours).
- b. RCRA Program Training.
  1. Inspector Orientation (10 hours).
  2. Regulatory Framework (40 hours).
  3. RCRA Compliance Evaluation Inspections; 100 hours (30 hours must be on-the-job training with an experienced inspector), and at least two of these inspections must be at treatment, storage and disposal facilities.
- c. Participation in at least 2 sampling activities conducted by an experienced inspector.

- d. Annual 8 hour safety Refresher Training.
- e. CPR certification.

In addition, each inspector will be provided with (or provided access to) the following reference materials:

- a. EPA Region 7 Standard Operating Procedures.
- b. EPA inspection guidance manuals.
- c. Current edition of 40 CFR (260-299).
- d. State Hazardous Waste Regulations.
- e. Hazardous materials reference literature.
- f. SW-846.
- g. Historical collection of rule changes (from 1980).
- h. EPA Standard Safety Operating Guides.

Each inspector will participate in a medical monitoring program. This monitoring will occur prior to conducting sampling activities, and on an annual basis thereafter. Inclusion in a respiratory protection program will be a part of this medical monitoring. All contractors will have equivalent safety and sampling training.

#### A7. Documentation and Records

This information is covered by the current versions of Region VII SOPs 2410.1 "LABO Analytical Data Management Procedures" and 2410.10 "Analytical Data Submission Packages."

### **B. Measurement/Data Acquisition**

#### B1. Sampling Process Design

##### a. Health and Safety

The inspector must ensure that the sampling can be performed in accordance with accepted safety procedures. The inspector should refer to the Health and Safety section of the applicable sampling SOP for unit or method specific guidance and to EPA PB92-963414, "Standard Operating Safety Guides", for additional guidance. In the event that the inspector has any reservations as to the safety of the sampling operations, no sampling will occur under this plan.

The primary safety hazards during this sampling activity will be from physical hazards and possibly TCLP heavy metals (lead, chrome, arsenic, barium, silver, cadmium, selenium and mercury) dust. Safety information on these metals are included in Appendix C. A safety survey will be conducted before any samples are collected. At the project leader's judgement, taking into account the weather, the surrounding conditions and the physical state of the waste streams, Level D is expected to be worn and possibly a respirator. Level D clothing consists of: tyvek gear, safety shoes, hard hat, safety glasses and gloves. A dust mask or a full-face respirator with appropriate dust cartridges (based on information in Appendix C) may be worn.

b. Samples

(1) Waste Streams at Point of Generation and  
Waste Received From Off-Site

- Emission Control Sludge (Dry and Wet) and  
By-Products:

It is expected that the sludge will be collected in a small container (such as a cubic foot bag or 55-gallon drum) at the point of generation. A composite sample will be collected as soon as possible after the sludge has been emptied into the container. The composite sample will consist of up to six aliquots depending on the size of the container. The aliquots will be collected from the top portion of the container. The aliquots will be randomly selected from the area most likely to be hazardous based on visual observations or based on process information received by the facility representative during the inspection.

- Waste Received From Off-Site:

It is expected that the waste received from off-site will be in a small container (such as a cubic foot bag or 55-gallon drum). A composite sample will be collected from a randomly selected container that has been received on-site. The composite sample will consist of up to six aliquots depending on the size of the container. The aliquots will be collected from the top portion of the container. The aliquots will be randomly selected from the area most likely to be hazardous based on visual

observations or based on process information received by the facility representative during the inspection.

## (2) Generated Waste Piles and Waste Received From Off-Site Piles

A layout of the site is unknown. It is expected that a part of the site will be used to store piles of the various waste either generated on-site or received from off-site.

Samples will be collected from the distinctive waste piles in the waste pile storage area. Two distinctive piles of each waste will be selected for sampling. For each waste, one pile will be randomly selected from the piles identified by the facility representative as being there the longest period of time. The other pile will be randomly selected from the piles identified by the facility representative as being there the shortest period of time. If the piles identified as being there the longest are not reachable safely, then the pile that has been there the longest out of the safely reachable piles will be selected. For each pile randomly selected, the sample will consist of one composite sample of up to ten aliquots depending on the size of the pile. The aliquots will be randomly selected from the area most likely to be hazardous based on visual observations or based on process information received by the facility representative during the inspection.

If there are no distinctive piles (all waste placed into one large pile or impossible to determine what wastes are in which pile) in the waste pile area, then up to six (depending on pile sizes and numbers) composite samples will be collected from randomly selected piles. The composite sample will consist of up to ten aliquots depending on the size of the piles. The aliquots will be randomly selected from the area most likely to be hazardous based on visual observations or based on process information received by the facility representative during the inspection.

## (3) Waste Spill Piles

It is expected that some of the generated waste may be collected outside in containers setting on the ground. Therefore, some of the waste may spill on the ground during this

collection process. These waste spills are expected to be small piles of no more than about a foot high. A composite sample will be randomly collected from the spill pile. The composite sample will consist of up to ten aliquots depending on the size of the piles. The aliquots will be randomly selected from the area most likely to be hazardous based on visual observations or based on process information received by the facility representative during the inspection.

#### (4) Waste Pile Area Soil

A surface soil sample will be collected from the soil in the waste pile storage area (may be more than one at the facility) and in any spill areas. For this project, surface soil is defined as the top 0-2 inches of soil.

The soil sample from the waste pile area will consist of one composite sample of up to ten aliquots depending on the size of the area and piles. The aliquots will be collected from the waste pile storage area that is vacant at the time of the inspection. The aliquots will be randomly selected from the area most likely to be hazardous based on visual observations or based on process information received by the facility representative during the inspection. If no area is vacant and waste piles are covering the entire storage area, then the aliquots will be collected from randomly selected areas. The randomly selected areas will be from an area most likely to be hazardous based on visual observations or based on process information received by the facility representative during the inspection in an area that is safely reachable and where the piles are low.

If the soil under the piles is not distinguishable (hard to determine the waste/soil interface), then a composite sample of up to ten aliquots, depending on the size of the area and piles, will be collected from the top 0-2 inches of the area under the piles. The aliquots will be randomly selected from the area most likely to be hazardous based on visual observations or based on process information received by the facility representative during the inspection.

#### (5) Spill Area Soil

A surface soil sample will be collected from the soil under any waste that has spilled on the ground. The soil sample will consist of a composite sample of up to ten aliquots depending on the size of the spill area. The aliquots will be randomly selected from the soil under the spill pile in an area most likely to be hazardous based on visual observations or based on process information received by the facility representative during the inspection.

#### (6) Background Soil

A surface soil background grab sample will be collected from an unaffected area on-site if such an area can be located. If an unaffected area cannot be located on-site, a background sample will be collected from an unaffected area off-site.

#### c. Waste Generated During Sampling

If any hazardous or potentially hazardous waste is generated from these sampling procedures, it will be left at the site, if possible or double bagged, labeled, and returned to EPA.

#### d. Additional Design Information

For this project, the inspector shall complete a more detailed process design on-site, prior to conducting the sampling operations. The more detail process design shall consist of noting sample locations on the site sketch, photographing the sample location, documenting the sampling method and sampling equipment.

The inspector will document any unusual site conditions or potential interferences.

The total number of samples expected to be collected and submitted for analysis under this plan, including duplicates is shown in Appendix B.

## B2. Sampling Methods Requirements

### a. Sampling

#### (1) Generated Wastes and Waste Received From off-Site

The composite samples from the containers will be collected using dedicated stainless steel spoons. The samples will be collected from the top 0-2 inches of the container. The composite samples will be homogenized in aluminum pie pans and then put into a labeled 8 oz. glass sample container.

#### (2) Waste Piles

The waste samples will be collected as discussed in Section B1 above in accordance with EPA SOP 2231.17A "Waste Sampling Procedures" (the section addressing the collection of waste pile samples). Dedicated stainless steel spoons will be used to collect the composite samples which will be homogenized in aluminum pie pans.

#### (3) Surface Soils

The surface soil samples will be collected as discussed in Section B1 above in accordance with R7 SOP 2231.12A "Soil Sampling" (the section addressing the collection of surface soil samples). Spoons or a shovel will be used to remove waste from the soil prior to sampling. Dedicated stainless steel spoons will be used to collect the composite samples which will be homogenized in aluminum pie pans.

#### (4) Duplicates

Duplicate samples identified in Appendix B will be collected as split samples, if possible. If not possible to mix the sample for a split such as if the waste is in large pieces, then adjacent samples will be collected.

### b. Additional Requirements

Sampling points will be identified in the field notes by their directional distance from landmarks that are likely to be preserved over time. The field observations will be recorded in



a bound notebook and/or on the LAST field sheets. Photographs of sampling locations will be taken.

The estimated number of samples expected to be collected include 28 waste samples, 5 soil samples and 3 duplicates will be collected for an estimated total of 36 samples per site.

#### B3. Sample Handling and Custody Requirements

Sample containers, preservation, and holding times will be those found in EPA ENSV SOP 2130.4B, "Sample Container Selection, Preservation, and Holding Times."

Chain-of-custody and field documentation will be in accordance with EPA ENSV SOP 2130.2A, "Field Chain-of-Custody for Environmental Samples" and EPA ENSV SOP 2130.3B "Identification, Documentation, and Tracking of Samples," respectively. The time of collection, location, sample section size, number of aliquots, and the sample depth will be recorded on field sheets produced by the EPA LAST system.

#### B4. Analytical Methods Requirements

The samples will be analyzed by the EPA Laboratory in accordance with the methods and levels of interest listed in Appendix B. The overall implementation of the quality assurance program by the Regional Laboratory is addressed in the EPA ENSV SOPs 1640.1, "Region 7 Laboratory Quality Assurance Project Plan" and 1610.1C, "Regional Laboratory Quality Control Policy".

#### B5. Quality Control Requirements

Duplicate samples will be collected as identified in Appendix B. No field blanks or trip blanks are planned for this project. Split samples will be offered to the facility representative and provided by EPA if requested.

Laboratory quality control elements, including spikes and blanks, will be performed in accordance with the above referenced analytical SOP and SOP 1610.1C.

B6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements

No field equipment requiring testing, inspection, and maintenance will be used.

For the analytical instrumentation, the testing, inspection, and maintenance will be performed in accordance with the above referenced analytical SOP and manufacturer's recommendations.

B7. Instrument Calibration and Frequency

No field instruments requiring calibration will be used for this project.

For the analytical instrumentation, the calibration will be performed in accordance with the above referenced analytical SOP and manufacturer's recommendations.

B8. Inspection/Acceptance Requirements for Supplies and Consumables

No special requirements are needed.

B9. Data Acquisition Requirements

No data will be used from other sources.

B10. Data Management

Data management will be in accordance with EPA ENSV SOPs 2120.2A, "Document Control" and 2410.1B "LABO Analytical Data Management Procedures."

**C. Assessment/Oversight**

C1. Assessments and Response Actions

No field assessment is planned for this activity due to the short time period of each project.

Assessments and response concerning the analytical aspect of the project are addressed in SOPs 1610.1C and 1640.1A. The information covers examples of conditions indicating out-of-control situations, who is responsible for initiating the corrective actions, and what steps may be taken.

## C2. Reports to Management

Once the project is complete and the resulting data obtained, the EPA project manager will prepare a final inspection report. The report will include a summary of the activities performed during the project and the resulting data (along with any statements about problems concerning data quality). The inspection report shall identify any results that indicate non-compliance with regulatory requirements, or that indicate potential release of regulated materials to the environment.

## **D. Data Validation and Usability**

### D1. Data Review, Validation, and Verification Requirements

The data will be peer reviewed by a qualified analyst and the lab Section Manager as identified in R7 ENSV SOPs 1640.1A and 1610.1C. The EPA project manager will be responsible for overall validation and final approval of the data in accordance with project purpose and use of the data.

### D2. Validation and Verification Methods

The data will be validated in accordance with R7 ENSV SOPs 1610.1C and 1640.1A. QC spot checks will be performed by the R7 laboratory following the frequency and criteria outlined in R7 ENSV SOPs 1640.1A and 1610.5A, "Quality Control Spot Checks of Regional Laboratory Data Packages."

The EPA project manager will perform the final review and approval of the data prior to it being entered into the LAST system as valid. The EPA project manager will look at field duplicates to ensure they are acceptable. The EPA project manager will also compare the sample descriptions with the field sheets for consistency and will ensure that any anomalies in the data are appropriately documented.

### D3. Reconciliation with User Requirements

Once the data results are compiled, the EPA project manager will review the field duplicates to determine if they fall within the acceptance limits as defined in this QAPP. Completeness will also be evaluated to determine if the completeness goal for this project has been met. If data quality indicators do not meet the project's requirements as outlined in this QAPP, then the data may be discarded and re-sampling may occur. The EPA project manager will evaluate the cause of the failure (if possible) and make the decision to discard the data and re-sample. If the failure is tied to the analysis, calibration and maintenance techniques will be reassessed as identified by the appropriate lab personnel.

**SAMPLE SUMMARY TABLE**

| <b>Location and Type of Sample</b>                           | <b>Sample Matrix</b> | <b>Estimated Number of Samples</b> | <b>Container Type</b> | <b>Preservation Method</b> | <b>Constituents of Interest</b>              | <b>Analytical Method (SW-846)</b> | <b>Levels of Interest</b>    |
|--------------------------------------------------------------|----------------------|------------------------------------|-----------------------|----------------------------|----------------------------------------------|-----------------------------------|------------------------------|
| Waste Streams At Point of Generation/<br>Waste From Off-site | Solids and Dust      | 20<br>includes one duplicate       | 8 oz. glass           | Cool to 4°C                | Total TCLP Metals and TCLP Metals (S92, S19) | 6010 and 1311                     | MDL and regulatory threshold |
| Waste Piles in Storage Area                                  | Solids and Dust      | 10<br>includes one duplicate       | 8 oz. glass           | Cool to 4°C                | Total TCLP Metals and TCLP Metals (S92, S19) | 6010 and 1311                     | MDL and regulatory threshold |
| Waste Pile Soil and Background Soils                         | Soil                 | 6<br>includes one duplicate        | 8 oz. glass           | Cool to 4°C                | Total TCLP Metals and TCLP Metals (S92, S19) | 6010 and 1311                     | MDL and regulatory threshold |

MDL - Minimum Detection Limit

APPENDIX A

**USEPA Region VII Analytical Services Request (ASR) Form**  
Please submit this form to the RLAB manager 30 days prior to sample delivery.

Activity No.: ANF30  
 Site Name, City, & State: Nutrg Flc Port Neal, IA  
 EPA Project Manager: Dedriel Newsome  
 EPA Branch: ARCM Phone No.: 5058  
 Contractor: \_\_\_\_\_ Phone No.: \_\_\_\_\_  
 Projected Sample Delivery Date: 9/25/98  
 Funding Program Element: RCRA

| No. of Samples | Sample Media | Group/Parameter Name            | MGP Code  |
|----------------|--------------|---------------------------------|-----------|
| 28+20          | Solid/Dust   | Total TCLP Metals + TCLP Metals | 592 + 519 |
| 5+10           | Soil         | Total TCLP Metals + TCLP Metals | 592 + 519 |
|                |              |                                 |           |
|                |              |                                 |           |
|                |              |                                 |           |
|                |              |                                 |           |
|                |              |                                 |           |
|                |              |                                 |           |
|                |              |                                 |           |

For assistance, contact the RLAB Customer Service Center, at (913)551-5295.

**Special Requirements or Comments:**

- Include Mercury
- Need Field Sheets + Tags

**Hazards/Environmental Compliance:**

Are any samples expected to contain:

>1 ppb dioxin - Yes ☐ No ☒  
 >1000 ppm toxic/hazardous chemicals - Yes ☐ No ☐

Are any samples known to have originated

from RCRA listed wastes? - Yes ☒ No ☐

**QA Requirements:**

Is there an approved QAPP?

Yes ☒ No ☐

Dedriel Newsome 9/15/98  
 EPA Project Manager (Date)

-----THIS SECTION FOR ENSV USE ONLY-----

Date Received: 10/16/98 Priority: B RLAB Approval: AT

RLAB Comments: base disposal decisions on analytical results

RESAT - Routine *ds*

9



## EQUIPMENT LIST

Stainless Steel Spoons - 72  
Aluminum Pans - 36  
Sample Containers (8-oz. Glass Jars) - 36  
Scissors  
Auger  
Duct Tape - 1 Roll  
Strapping Tape - 1 Roll  
Custody Seals - 4  
Foam - Enough to Wrap Jars  
Chain-of-custody Form (With Protective Plastic Bag) - 1 Form and 1 Bag  
Measuring Tape (50 Ft)  
Stainless Steel Shovel  
Water - 1 Gallon  
Alconox Soap  
Paper Towels  
Large Plastic Bags - 3  
Last Field Sheets and Tags  
Waterproof Marker  
Field Bound Notebook  
Camera/film  
Ice Chests/ice  
Safety Equipment:  
    Tyvek Gear  
    Protective Gloves  
    Steel Toe Boots  
    Safety Glasses  
    Hard Hat  
    Boot Covers  
    Respirators  
    Respirator Cartridges (Dust)

APPENDIX B

**SAMPLE SUMMARY TABLE**

| Location and Type of Sample                                  | Sample Matrix   | Estimated Number of Samples  | Container Type | Preservation Method | Constituents of Interest                     | Analytical Method (SW-846) | Levels of Interest           |
|--------------------------------------------------------------|-----------------|------------------------------|----------------|---------------------|----------------------------------------------|----------------------------|------------------------------|
| Waste Streams At Point of Generation/<br>Waste From Off-site | Solids and Dust | 20<br>includes one duplicate | 8 oz. glass    | Cool to 4°C         | Total TCLP Metals and TCLP Metals (S92, S19) | 6010 and 1311              | MDL and regulatory threshold |
| Waste Piles in Storage Area                                  | Solids and Dust | 10<br>includes one duplicate | 8 oz. glass    | Cool to 4°C         | Total TCLP Metals and TCLP Metals (S92, S19) | 6010 and 1311              | MDL and regulatory threshold |
| Waste Pile Soil and Background Soils                         | Soil            | 6<br>includes one duplicate  | 8 oz. glass    | Cool to 4°C         | Total TCLP Metals and TCLP Metals (S92, S19) | 6010 and 1311              | MDL and regulatory threshold |

MDL - Minimum Detection Limit

APPENDIX C

Not included with attachment  
Info obtained from TOMES Database



## Tetra Tech EM Inc.

7932 Nieman Road ♦ Lenexa, KS 66214 ♦ (913) 894-2600 ♦ FAX (913) 894-6295

REC'D

OCT 9 1998

RESP

October 7, 1998

Ms. Lynn Slugantz  
Work Assignment Manager  
U.S. Environmental Protection Agency, Region 7  
726 Minnesota Avenue  
Kansas City, KS 66101

**Subject: Trip Report for Foundry Sampling Support  
Nutra-Flo Company, Sergeant Bluff, Iowa  
EPA Contract No. 68-W4-0004, Work Assignment No. R07054**

Dear Ms. Slugantz:

Tetra Tech EM Inc. (Tetra Tech), is submitting the enclosed trip report for sampling support provided at the Nutra-Flo Company in Sergeant Bluff, Iowa. The trip report summarizes sampling activities and documents sample collection. Photographs taken during the inspection by Ms. Dedriel Newsome of the U.S. Environmental Protection Agency will be included in her trip report.

Please call me at (913) 495-3915, or Mr. Jim Dunajcik at (913) 495-3911, if you have any comments or questions.

Sincerely,

Keith Brown  
Project Manager

Enclosure

cc: Aaron Zimmerman, EPA RPO (letter only)  
Pat Reed, Tetra Tech  
Kathy Homer, Tetra Tech (letter only)  
Jim Dunajcik, Tetra Tech

BUSINESS CONFIDENTIAL

## **TRIP REPORT**

**Nutra-Flo Company  
Sergeant Bluff, Iowa**

### **PURPOSE**

On September 22, 1998, Tetra Tech EM Inc. (Tetra Tech), provided sampling support to the U.S. Environmental Protection Agency (EPA) during a compliance evaluation inspection (CEI) at the Nutra-Flo Company (Nutra-Flo) facility in Sergeant Bluff, Iowa. As directed by the EPA inspector, Tetra Tech collected and packaged samples, and the EPA inspector completed associated paperwork. The samples remained under the custody of the EPA inspector for delivery to the EPA Region 7 Laboratory for Toxicity Characteristic Leaching Procedure (TCLP) metals and total metals analyses. The table and figure cited in the text are presented at the end of this report.

### **FIELD WORK**

Ms. Dedriel Newsome was the EPA Region 7 inspector for the CEI. Mr. Jim Dunajcik represented Tetra Tech during the sampling activities. Nutra-Flo was represented by Mr. Dirk Lohry, President, Nulex Division, and Ms. Holly Ashley, Facilities Manager. Mr. Dunajcik arrived at the Nutra-Flo facility at 12:30 p.m. on September 22. Ms. Newsome was already at the facility and in the process of conducting the CEI.

The facility manufactures fertilizer from raw materials such as anhydrous ammonia and phosphoric acid. The facility purchases bulk raw materials and blends them on site at its blending facility on a seasonal and job basis. The facility does not accept waste from other facilities for use in its formulations. The facility does not generate wastes containing TCLP metals based on process knowledge and test results.

During the CEI, Tetra Tech collected a total of 10 samples, including one duplicate. All of the samples taken were of bulk raw materials used in the production of fertilizer. Ms. Newsome directed Tetra Tech to collect one sample of                      micronutrient from storage bay 3 in the process building. There were six storage bays located on the west wall of the process building, with bay 1 located at the

north end of the building and continuing to bay 6 approximately 150 feet south. Tetra Tech then collected one sample of \_\_\_\_\_ from bay 5. Tetra Tech was also directed to collect a composite sample of \_\_\_\_\_ from drums located on the east side of the process building across from bay 6. Tetra Tech then collected one sample of zinc ash from bay 5, and one sample and one duplicate sample of zinc oxide from bay 6. Additional sampling was conducted in the Morten building, the storage facility for bags of zinc/iron crystals. Tetra Tech was directed to take one sample each of zinc/iron crystals manufactured by \_\_\_\_\_ respectively. Tetra Tech was also directed to take one sample of zinc/iron crystals from a bag outdoors to the north of the blending building.

For all samples collected, Tetra Tech used a disposable, stainless-steel spoon to scoop sample material into a disposable, aluminum pan. Sample material was homogenized and then spooned into sample containers. All samples were contained in separate 8-ounce glass jars, and were sent for analysis for total RCRA metals by EPA SW-846 Method 6010 and TCLP metals by EPA SW-846 Method 1311. EPA offered split samples to the facility, which Mr. Lohry and Ms. Ashley accepted. The table at the end of this report summarizes each of the samples collected; the sampling locations are shown on the figure. During the CEI, Ms. Newsome completed field sheets and took photographs while Mr. Dunajcik conducted sampling. Mr. Dunajcik also took notes in the field logbook, a copy of which is included in the appendix.

## **DEVIATIONS IN PROPOSED FIELD WORK**

No deviations from the EPA-approved quality assurance project plan were conducted during the sampling support.

## **OBSERVATIONS**

None.



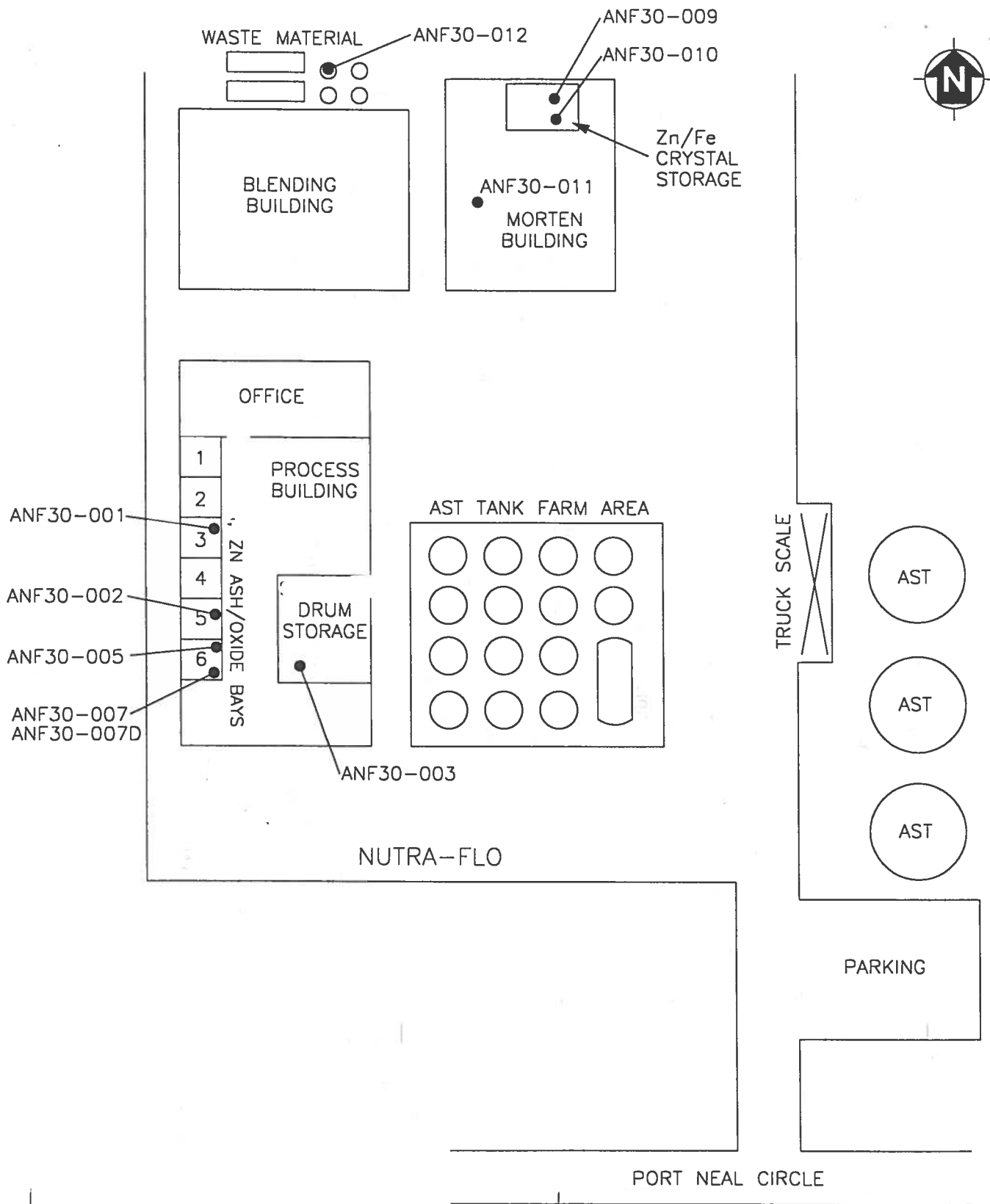
**TABLE**  
**SUMMARY OF SAMPLE INFORMATION**

Nutra-Flow Company  
Sergeant Bluff, Iowa

| Sample ID               | Sample Date | Sample Time | Location                                                   | Description                   |
|-------------------------|-------------|-------------|------------------------------------------------------------|-------------------------------|
| ANF30-001               | 09/22/98    | 1430        | Bay 3 on west side of process building                     | light gray dust with metal    |
| ANF30-002               | 09/22/98    | 1440        | Bay 5 on west side of process building                     | light gray dust with metal    |
| ANF30-003               | 09/22/98    | 1450        | Composite sample of drums east of bays in process building | light gray dust with metal    |
| ANF30-005               | 09/22/98    | 1503        | Bay 6 on west side of process building                     | Zinc Ash-gray metal and dust  |
| ANF30-007               | 09/22/98    | 1516        | Bay 6 on west side of process building                     | Zinc Oxide-white powder       |
| ANF30-007D <sup>a</sup> | 09/22/98    | 1516        | Bay 6 on west side of process building                     | Zinc Oxide-white powder       |
| ANF30-009               | 09/22/98    | 1600        | Bag on north wall of Morten building                       | Zinc/Iron crystals-pale green |
| ANF30-010               | 09/22/98    | 1552        | Bag on north wall of Morten building                       | Zinc/Iron crystals-pale green |
| ANF30-011               | 09/22/98    | 1603        | Bag on west wall of Morten building                        | Zinc/Iron crystals-pale green |
| ANF30-012               | 09/22/98    | 1613        | Bag in waste area north of the blending building           | Zinc/Iron crystals-pale green |

Note:

<sup>a</sup> Sample ANF30-007D is a duplicate of sample ANF30-007.



# LEGEND

ANF30-011 ● SAMPLE LOCATION

NUTRA-FLO  
SEARGENT BLUFF, IOWA

FIGURE  
SAMPLE LOCATIONS

\*\*NOT TO SCALE\*\*



Tetra Tech EM Inc.

## **APPENDIX**

**BUSINESS CONFIDENTIAL**

## CURVE FORMULAS

$$T = \frac{R \tan \phi}{50 \tan \phi + I}$$

$$\sin. \frac{1}{2} D = \frac{50}{100}$$

$$\sin. \frac{1}{2} D = \frac{501}{K}$$

$$R = T \text{ col. } 11$$

$$R = \frac{50}{\sin. \frac{1}{2} 11}$$

$$E = \{ \text{ex. sec. 1} \}$$

1  
2  
3  
4

$$\text{Chord def} = \frac{\text{chord}^2}{2}$$

$$\text{No. chords} = \frac{1}{12}$$

$\text{am. def.} = \frac{1}{2} \text{ chord def}$

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

**Rule 1.** Multiply the given distance by the given deflection.

Rule 2. Multiply given deflection by .01745 (def. for 1° for 1 ft.) and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by given distance.

to find deflection for a given angle and distance. Multiply the angle by .01745, and the product by the distance.

## GENERAL DATA

**RIGHT ANGLE TRIANGLES.** Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given hyp. 100, Alt.  $25.25^2 \div 200 = 3.125$ ;  $100 - 3.125 = 96.875$

To find Tons of Rail in one mile of track: multiply result by 17 and divide by 100.

... multiply weight per yard  
by 11, and divide by 7.

**LEVELLING.** The correction for curvature and refraction, in feet and decimals of feet is equal to  $0.574d^2$ , where  $d$  is the distance in miles. The correction for curvature alone is closely  $3d^2$ . The combined correction is negative.

**PROBABLE ERROR.** If  $d_1, d_2, d_3$ , etc. are the discrepancies of various results from the mean, and if  $\sum d^2$  = the sum of the squares of these differences and  $n$  = the number of observations, then the probable error of the mean =  $\pm 0.6745 \sqrt{\sum d^2 / n(n-1)}$

| MINUTES IN DECIMALS OF A DEGREE |       |    |       |    |       |    |       |    |       |    |        |  |
|---------------------------------|-------|----|-------|----|-------|----|-------|----|-------|----|--------|--|
| 1                               | .0167 | 11 | .1833 | 21 | .3500 | 31 | .5167 | 41 | .6833 | 51 | .8500  |  |
| 2                               | .0333 | 12 | .2000 | 22 | .3667 | 32 | .5333 | 42 | .7000 | 52 | .8667  |  |
| 3                               | .0500 | 13 | .2167 | 23 | .3833 | 33 | .5500 | 43 | .7167 | 53 | .8833  |  |
| 4                               | .0667 | 14 | .2334 | 24 | .4000 | 34 | .5667 | 44 | .7333 | 54 | .9000  |  |
| 5                               | .0833 | 15 | .2500 | 25 | .4167 | 35 | .5833 | 45 | .7500 | 55 | .9167  |  |
| 6                               | .1000 | 16 | .2667 | 26 | .4333 | 36 | .6000 | 46 | .7667 | 56 | .9333  |  |
| 7                               | .1167 | 17 | .2833 | 27 | .4500 | 37 | .6167 | 47 | .7833 | 57 | .9500  |  |
| 8                               | .1333 | 18 | .3000 | 28 | .4667 | 38 | .6333 | 48 | .8000 | 58 | .9667  |  |
| 9                               | .1500 | 19 | .3167 | 29 | .4833 | 39 | .6500 | 49 | .8167 | 59 | .9833  |  |
| 10                              | .1667 | 20 | .3333 | 30 | .5000 | 40 | .6667 | 50 | .8333 | 60 | 1.0000 |  |

| INCHES IN DECIMALS OF A FOOT |        |       |       |       |       |       |       |       |       |       |        |
|------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1-16                         | 3-32   | 1/8   | 3-16  | 1/4   | 5-16  | 3/8   | 1/2   | 5/8   | 3/4   | 7/8   | 1      |
| .0625                        | .03125 | .125  | .1875 | .25   | .3125 | .375  | .4375 | .5    | .5625 | .625  | .6875  |
| 1                            | 2      | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12     |
| .0833                        | .1667  | .2500 | .3333 | .4167 | .5000 | .5833 | .6667 | .7500 | .8333 | .9167 | 1.0000 |

①

- ARRIVED 12:45 PM  
 LOCATED MS. NEWSON  
 LOCATED DEBRIS NEWSON  
 BEGAN LABELING SAMPLE JARS  
 - ACTIVITY # ANP 30  
 - MET w/ HOLLY ASHLEY - FACILITY MANAGER  
 NATRA - FLO @ 1:20 PM  
 MET w/ PAINT WASTE FROM CONCRETE  
 SANDLASTING IS ACCEPTED  
 @ LAND FILL w/ REGULAR FACILITY DEBRIS  
 WILL USE 8-10 TONS SAND FOR THIS JOB  
 RECYCLE PAINT SOLVENT BY  
 USE MINERAL SPIRITS, MEK, OR ZYLA - LESS THAN 5 GAL.  
 THINNER USED @ THIS SITE  
 GENERATED APPROX 1-2 GAL. WASTE PAINT ON SITE, WHICH CAN GO TO LANDFILL.

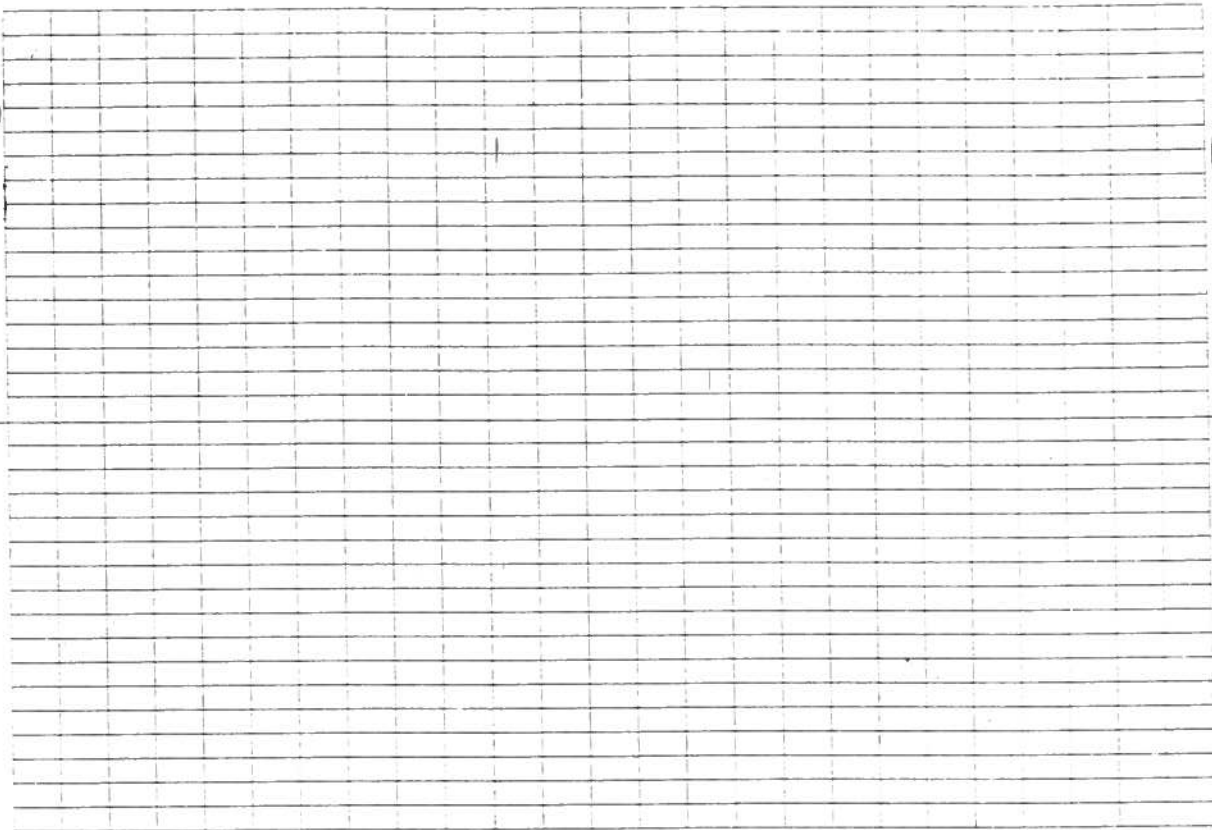
②

13:50 TO LOCATE SAMPLE STORAGE FACILITY  
 - SAMPLES - TOTAL MET TOLP  
 GRAY DUST ANP 30 - 001 - BAYS 14:30P  
 " " - 002 - " " BAYS 14:40P  
 GRASS DUST - 003 - " " EAST DRUMS 14:50  
 " " - 004 - " " WEST BAYS  
 CRISTAL DUST - 005 - ZN ASH BAY 6 15:03  
 " " - 006 - " " EAST DRUMS 15:16  
 WHITE POWDER - 007 - " OXIDE BAY 6 (D)  
 " " - 008 - " OXIDE EAST DRUMS  
 - SAMPLES TAKEN IN NUCLEX OR PROCESS BLDG.  
 - FINISHED SAMPLING @ 15:23  
 - ~~FINISHED SAMPLING~~ PROCESS BLDG MORTEN BLDG  
 - SAMPLE ZINC - IRON - CRYSTAL STORAGE  
 BUILDING - BEGIN 15:42  
 " ANP 30 - 009 - ZN/Fe 16:00  
 LIGHT GREEN - 010 - ZN/Fe 15:52  
 BLUE GREEN - 011 - " 16:05  
 CRISTAL - 012 - " 16:13  
 - FINISHED SAMPLING - MORTEN BLDG 16:15

(19)

-- BEGAN EXIT INTERVIEW (a)  
16:50  
-- COMPLETED EXIT INTERVIEW  
(a) 17:10

(21)



DRAFT FIELD SHEET  
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 001 QCC: MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO  
LOCATION: PORT NEAL

IA PROJECT NUM: A52

REF LATITUDE:

PT: LONGITUDE:

SAMPLE DES:

LOCATION: Bay 3  
Nutrex Warehouse (Process Bldg)

CASE/BATCH/SMO:

STORET/AIRS NO:

LAB:

DATE

TIME

FROM REF PT

BEG:

9/22/98

2:30

EAST:

END:

9/22/98

2:40

NORTH:

DOWN:

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

Total + TCW Hg

Requested

On all samples

Add (SG07)% solids

9/28/98

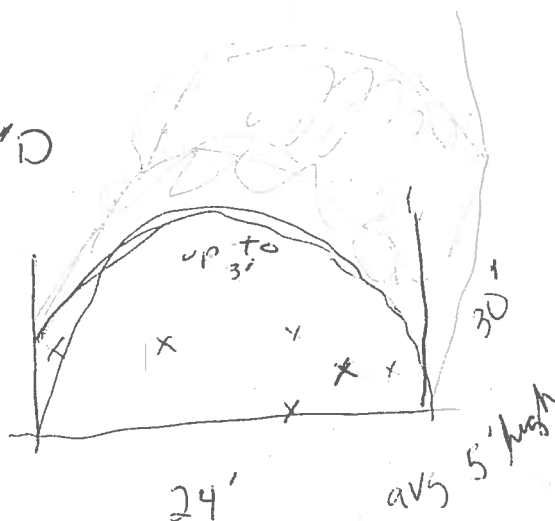
COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: OPERABLE UNIT:

Composite of 6 aliquots

SS spoon → Al pans → labeled jar

grey + light grey dust with  
metal pieces dust to chunks  $\approx 1"$  D

pH 11



skims For Reactor

Limited access  
due to safety

Dust through out WARE  
up to 6" in some areas  
avg  $\approx 2"$  high

SAMPLE COLLECTED BY :

Jim Dynajcik

DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 002 QCC: \_ MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

REF LATITUDE: \_ \_ \_

LOCATION: PORT NEAL

IA PROJECT NUM: A52

PT: LONGITUDE: \_ \_ \_

SAMPLE DES: - Bay 5

DATE TIME FROM REF PT

LOCATION: Nutrex WHSE

BEG: 9/22/98 2:45 EAST: \_ \_ \_

CASE/BATCH/SMO: \_ \_ \_

LAB: \_

END: 9/22/98 2:50 NORTH: \_ \_ \_

STORET/AIRS NO: \_

DOWN: \_

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

**44 (8007)% solids**

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: \_ OPERABLE UNIT: \_

Composite of 6 aliquots  
SS spoon → AL pan → labeled jar  
grey ~~brown~~ dust  
access limited

that has been  
put thru a ball mill to remove  
Zn metallics according to Mr. Lunny

pH 12



SAMPLE COLLECTED BY : Jim Dunajcik



DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 003 QCC: \_ MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

REF LATITUDE: \_ \_ \_

LOCATION: PORT NEAL

IA PROJECT NUM: A52

PT: LONGITUDE: \_ \_ \_

SAMPLE DES:

-East Brums

LOCATION: ~~ANLEY WASE~~

CASE/BATCH/SMO: \_ \_ \_

LAB: \_

DATE

TIME

FROM REF PT

BEG: 9/22/98

2:50

EAST: \_

END: 9/22/98

2:53

NORTH: \_

STORET/AIRS NO: \_

DOWN: \_

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

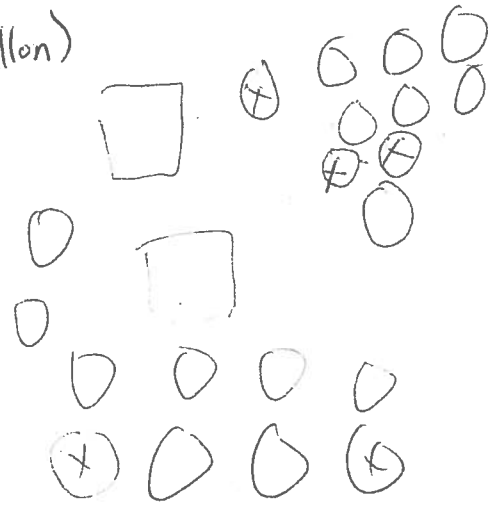
TOTAL METALS OF TCLP

Add (SC07)% solids

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: \_ OPERABLE UNIT: \_

SS spoon → Al pan → label jar  
Top 0-2" from the 5 drums (SS-gallon)  
Dark grey coarse material w/ light  
grey chunks  
5 randomly selected drums that  
we had access to

PH13+14



barriers

SAMPLE COLLECTED BY : Jim Dunajcik

DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 005 QCC: MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

REF LATITUDE: \_ \_ \_

LOCATION: PORT NEAL

IA PROJECT NUM: A52

PT: LONGITUDE: \_ \_ \_

SAMPLE DES: 2n Ash - Bay 6

LOCATION: Nutrex WASTE

CASE/BATCH/SMO: \_ \_ \_

LAB: \_

STORET/AIRS NO: \_

DATE TIME FROM REF PT

BEG: 9/22/98 3:00 EAST: \_

END: 9/22/98 3:05 NORTH: \_

DOWN: \_

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: Add (SC07)% solids OPERABLE UNIT: \_

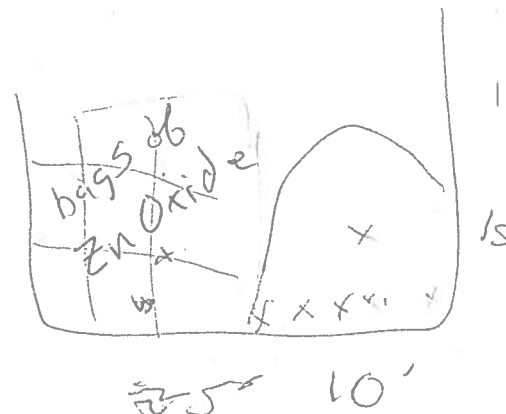
bulky composite

55 gallon → Alpan → labeled jar

light grey dust w/ metal shavings

access limited

pH 15



SAMPLE COLLECTED BY : Jim Dunajcik

DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 007 QCC: \_ MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

LOCATION: PORT NEAL

IA PROJECT NUM: A52

REF LATITUDE: \_ \_ \_

PT: LONGITUDE: \_ \_ \_

SAMPLE DES: Zn Oxide - Bay 6

LOCATION: Nutrex Warehouse

CASE/BATCH/SMO: \_/\_/\_

STORET/AIRS NO: \_

LAB: \_

DATE TIME FROM REF PT  
BEG: 9/22/98 3:10 EAST: \_  
END: 9/22/98 3:10 NORTH: \_  
DOWN: \_

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

Add (EG07)% solids

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: \_ OPERABLE UNIT: \_

SS spoon → Alpan → labaled jar  
Taken from top 0-6 inches of bag  
access limited

White powder

~ 30 sacks

pH 16

on south side

bunker

Zn ash

(+)

SAMPLE COLLECTED BY : Jim Dunajcik

DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: ~~033~~<sup>807</sup> QCC: D MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

REF LATITUDE: \_\_\_\_\_

LOCATION: PORT NEAL

IA PROJECT NUM: A52

PT: LONGITUDE: \_\_\_\_\_

SAMPLE DES: DUPLICATE/SAMPLE ~~033~~<sup>807</sup> DATE TIME FROM REF PT

LOCATION: Nutex W HSE ~~at~~ North Side BEG: 9/22/98 3:20 EAST: \_\_\_\_\_

CASE/BATCH/SMO: \_\_\_\_\_ LAB: \_\_\_\_\_ END: 9/22/98 3:25 NORTH: \_\_\_\_\_

STORET/AIRS NO: \_\_\_\_\_ DOWN: \_\_\_\_\_

ANALYSIS REQUESTED:

CONTAINER PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

Add (8007)% solids

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: \_\_\_\_\_ OPERABLE UNIT: \_\_\_\_\_

same procedure as H 007

white powder

pH 17

~ 30 sacks on

on North side

bag  
on  
top

SAMPLE COLLECTED BY :

Jim Dungicik

DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 009 QCC: \_ MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

REF LATITUDE: \_ \_ \_

LOCATION: PORT NEAL

IA PROJECT NUM: A52

PT: LONGITUDE: \_ \_ \_

SAMPLE DES: Zn/Fe Crystal

LOCATION: Morton Bldg

CASE/BATCH/SMO: \_ \_ \_

LAB: \_

STORET/AIRS NO: \_

DATE TIME FROM REF PT  
BEG: 9/22/98 4:00 EAST: \_  
END: 9/22/98 4:05 NORTH: \_  
DOWN: \_

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

Add (SC07)% solids

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: \_ OPERABLE UNIT: \_

SS spoon → Al pan → labeled jar

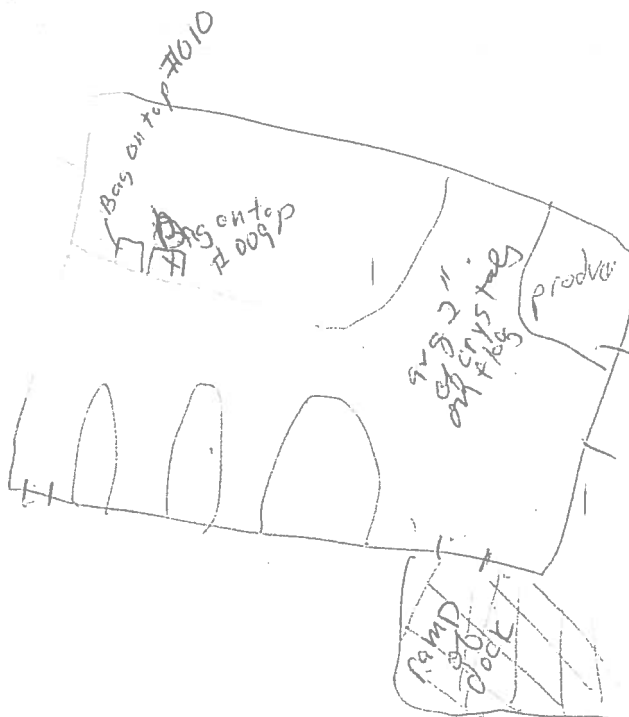
light blue green ~~crystal~~ ~~light blue~~

pH 6 & 7

Top of front top bag supersack  
0-6" labeled 58

WHSE was just organized  
by ratio

SAMPLE COLLECTED BY : Jim Dunajcik



DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 010 QCC: \_ MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

REF LATITUDE: \_ \_ \_

LOCATION: PORT NEAL

IA PROJECT NUM: A52

PT: LONGITUDE: \_ \_ \_

SAMPLE DES: Zn/Fe Crystal

LOCATION: Morton Bldg

CASE/BATCH/SMO: \_/ \_/ \_

STORET/AIRS NO: \_

LAB: \_

DATE

TIME

FROM REF PT

BEG: 7/22/98

3:55

EAST: \_

END: 9/22/98

4:00

NORTH: \_

DOWN: \_

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

Add (SC07)% solids

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: \_ OPERABLE UNIT: \_

SS spoon → Al pan → label jar

light blue green crystals

Top 6" of super sack

pH 4 + 5

see sample # 009

SAMPLE COLLECTED BY :

Jim Dunajcik

7.1.8

DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 011 QCC: \_ MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

LOCATION: PORT NEAL

IA PROJECT NUM: A52

REF LATITUDE: \_ \_ \_

PT: LONGITUDE: \_ \_ \_

SAMPLE DES: Zn/Fe Crystals

LOCATION: Morton Bldg

CASE/BATCH/SMO: \_/\_/\_

STORET/AIRS NO: \_

LAB: \_

DATE TIME FROM REF PT  
BEG: 9/22/98 4:40 EAST: \_  
END: 9/22/98 4:15 NORTH: \_  
DOWN: \_

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

Add (8907)X solids

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: \_ OPERABLE UNIT: \_

ss spoon → Al pan → label jar

Top 6" of bag

light blue green crystals

pH 8 + 9

labeled

Front bag label  
13

SAMPLE COLLECTED BY : Jim Dunajcik

DRAFT

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII  
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 98 ACTNO: ANF30 SAMNO: 012 QCC: \_ MEDIA: SOIL PL: NEWSOME, DEDRIEL

ACTIVITY DES: NUTRA FLO

LOCATION: PORT NEAL

IA PROJECT NUM: A52

REF LATITUDE: \_ \_ \_

PT: LONGITUDE: \_ \_ \_

SAMPLE DES: Zn/Fe Crystal - West Outside

LOCATION: Morton Bldg

CASE/BATCH/SMO: 7/7

STORET/AIRS NO: \_

DATE TIME FROM REF PT

BEG: 9/22/98 4:15 EAST: \_

END: 9/22/98 4:20 NORTH: \_

DOWN: \_

ANALYSIS REQUESTED:

CONTAINER

PRESERVATIVE

MGP

NAME

GLASS

S19

TCLP METALS

S92

TOTAL METALS OF TCLP

Add (SG07)X solids

COMMENTS: FOR SUPERFUND ONLY: SUBSITE IDENTIFIER: \_ OPERABLE UNIT: \_

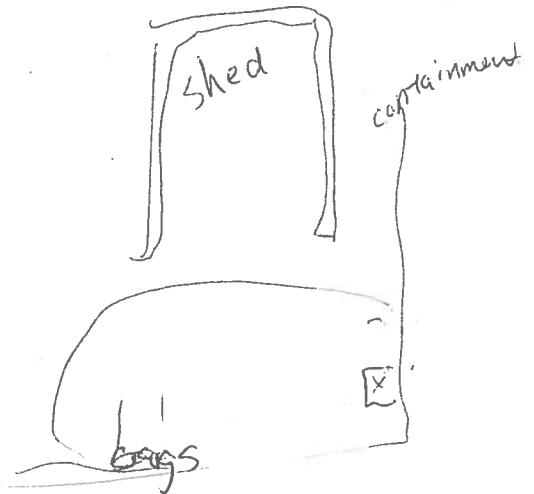
SS-spoon → AL pan → labeled jar

light blue/green crystals

Top 6" of bag randomly selected

pH 10

Granulator  
Bldg



SAMPLE COLLECTED BY : Jim Dunajcik



**CHAIN OF CUSTODY RECORD  
ENVIRONMENTAL PROTECTION AGENCY REGION VII**

9/25/98

|                                                  |                                               |                                                     |                 |
|--------------------------------------------------|-----------------------------------------------|-----------------------------------------------------|-----------------|
| ACTIVITY LEADER(Print)<br><b>Dedriel Newsome</b> | NAME OF SURVEY OR ACTIVITY<br><b>NutraFlo</b> | DATE OF COLLECTION<br>22 / 9 / 98<br>DAY MONTH YEAR | SHEET<br>1 of 1 |
|--------------------------------------------------|-----------------------------------------------|-----------------------------------------------------|-----------------|

**CONTENTS OF SHIPMENT**

| SAMPLE<br>NUMBER                               | TYPE OF CONTAINERS                      |               |        |        |                         | SAMPLED MEDIA |      |          |      |       | RECEIVING LABORATORY<br>REMARKS OTHER INFORMATION<br>(condition of samples upon receipt,<br>other sample numbers, etc ) |
|------------------------------------------------|-----------------------------------------|---------------|--------|--------|-------------------------|---------------|------|----------|------|-------|-------------------------------------------------------------------------------------------------------------------------|
|                                                | CUBITAINER                              | 802<br>BOTTLE | BOTTLE | BOTTLE | VOA SET<br>(2 VIALS EA) | water         | soil | sediment | dust | other |                                                                                                                         |
|                                                | NUMBERS OF CONTAINERS PER SAMPLE NUMBER |               |        |        |                         |               |      |          |      |       |                                                                                                                         |
| ANF30-001                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-002                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-003                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-005                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-007                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-007D                                     |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-009                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-010                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-011                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| ANF30-012                                      |                                         | 1             |        |        |                         |               |      |          |      | X     |                                                                                                                         |
| <div>Nothing Follows</div> <div>Complete</div> |                                         |               |        |        |                         |               |      |          |      |       |                                                                                                                         |

|                                                                                                   |                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESCRIPTION OF SHIPMENT<br>10 PIECE(S) CONSISTING OF _____ BOX(ES)<br>1 ICE CHEST(S); OTHER _____ | MODE OF SHIPMENT<br>____ COMMERCIAL CARRIER _____<br>____ COURIER _____<br><input checked="" type="checkbox"/> SAMPLER CONVEYED _____<br>(SHIPPING DOCUMENT NUMBER) |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| PERSONNEL CUSTODY RECORD                                                     |                 |              |                                                                              |
|------------------------------------------------------------------------------|-----------------|--------------|------------------------------------------------------------------------------|
| RELINQUISHED BY (SAMPLER)<br><i>Dedriel Newsome</i>                          | DATE<br>9/25/98 | TIME<br>9:55 | RECEIVED BY<br><i>Michael R. Jones</i>                                       |
| <input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED |                 |              | <input checked="" type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED |
| REASON FOR CHANGE OF CUSTODY<br><i>Analysis</i>                              |                 |              |                                                                              |
| RELINQUISHED BY                                                              | DATE            | TIME         | RECEIVED BY                                                                  |
| <input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED            |                 |              | <input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED            |
| REASON FOR CHANGE OF CUSTODY                                                 |                 |              |                                                                              |
| RELINQUISHED BY                                                              | DATE            | TIME         | RECEIVED BY                                                                  |
| <input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED            |                 |              | <input type="checkbox"/> SEALED <input type="checkbox"/> UNSEALED            |
| REASON FOR CHANGE OF CUSTODY                                                 |                 |              |                                                                              |

# ANALYSIS REQUEST REPORT

VALIDATED DATA

FOR ACTIVITY: ANF30

ALL REAL SAMPLES AND FIELD Q.C.

NEWSOME, DEDRIEL

01/19/99 07:14:06

## \* FINAL REPORT

FY: 98 ACTIVITY: ANF30 DESCRIPTION: NUTRA FLO LOCATION: PORT NEAL IOWA

STATUS: ACTIVE TYPE: SAMPLING - IN HOUSE ANALYSIS PROJECT: A52

LABO DUE DATE IS 10/28/98. REPORT DUE DATE IS 11/21/98.

INSPECTION DATE: 9/22/98 ALL SAMPLES RECEIVED DATE: 09/28/98

ALL DATA APPROVED BY LABO DATE: 11/09/98 FINAL REPORT TRANSMITTED DATE: 00/00/00

EXPECTED LABO TURNAROUND TIME IS 30 DAYS EXPECTED REPORT TURNAROUND TIME IS 60 DAYS

ACTUAL LABO TURNAROUND TIME IS 42 DAYS ACTUAL REPORT TURNAROUND TIME IS 0 DAYS

SITE CODE: SITE:

| SAMP. NO. | QCC | M | DESCRIPTION                            | SAMPLE # STATUS | CITY      | STATE | AIRS/STORER LOC NO | LAYER | BEG. DATE | BEG. TIME | END. DATE | END. TIME |
|-----------|-----|---|----------------------------------------|-----------------|-----------|-------|--------------------|-------|-----------|-----------|-----------|-----------|
| 001       | S   |   | -BAY 3/NULEX WAREHOUSE                 | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 14:30     | 09/22/98  | 14:40     |
| 002       | S   |   | -BAY 5/NULEX WAREHOUSE                 | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 14:45     | 09/22/98  | 14:50     |
| 003       | S   |   | -EAST DRUMS/NULEX WAREHOUSE            | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 14:50     | 09/22/98  | 14:55     |
| 005       | S   |   | ZINC ASH-BAY 6/NULEX WAREHOUSE         | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 15:00     | 09/22/98  | 15:05     |
| 007       | S   |   | ZINC OXIDE-BAY 6/NULEX WAREHOUSE       | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 15:10     | 09/22/98  | 15:20     |
| 007       | D   |   | ZINC OXIDE-BAY 6/DUPLICATE             | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 15:20     | 09/22/98  | 15:25     |
| 009       | S   |   | ZN/FE CRYSTAL                          | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 16:00     | 09/22/98  | 16:05     |
| 010       | S   |   | ZN/FE CRYSTAL                          | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 15:55     | 09/22/98  | 16:00     |
| 011       | S   |   | ZN/FE CRYSTAL                          | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 16:10     | 09/22/98  | 16:15     |
| 012       | S   |   | ZN/FE CRYSTAL-WEST OUTSIDE/MORTON BLDG | 1               | PORT NEAL | IOWA  |                    |       | 09/22/98  | 16:15     | 09/22/98  | 16:20     |

# EXPLANATION OF CODES AND INFORMATION ON ANALYSIS REQUEST DETAIL REPORT

## SAMPLE INFORMATION:

SAMP. NO. = SAMPLE IDENTIFICATION NUMBER (A 3-DIGIT NUMBER WHICH IN COMBINATION WITH THE ACTIVITY NUMBER AND QCC, PROVIDES AN UNIQUE NUMBER FOR EACH SAMPLE FOR IDENTIFICATION PURPOSES)

QCC = QUALITY CONTROL CODE (A ONE-LETTER CODE USED TO DESIGNATE SPECIFIC QC SAMPLES. THIS FIELD WILL BE BLANK FOR ALL NON-QC OR ACTUAL SAMPLES):

B = CAL INCREASED CONCENTRATION FOR A LAB SPIKED DUP SAMPLE

D = MEASURED VALUE FOR FIELD DUPLICATE SAMPLE

F = MEASURED VALUE FOR FIELD BLANK

G = MEASURED VALUE FOR METHOD STANDARD

H = TRUE VALUE FOR METHOD STANDARD

K = CAL INCREASED CONCENTRATION FOR FIELD SPIKED DUP SAMPLE

L = MEASURED VALUE FOR A LAB DUPLICATE SAMPLE

M = MEASURED VALUE FOR LAB BLANK

N = MEASURED CONCENTRATION OF FIELD SPIKED DUPLICATE

P = MEASURED VALUE FOR PERFORMANCE STANDARD

R = CAL INCREASED CONCENTRATION RESULTING FROM LAB SPIKE

S = MEASURED CONCENTRATION OF LAB SPIKED SAMPLE

T = TRUE VALUE OF PERFORMANCE STANDARD

W = MEASURED CONCENTRATION OF LAB SPIKED DUPLICATE

Y = MEASURED CONCENTRATION OF FIELD SPIKED SAMPLE

Z = CAL INCREASED CONCENTRATION RESULTING FROM FIELD SPIKE

1 = MEASURED VALUE OF FIRST SPIKED REPLICATE

2 = MEASURED VALUE OF SECOND SPIKED REPLICATE

3 = MEASURED VALUE OF THIRD SPIKED REPLICATE

4 = MEASURED VALUE OF FOURTH SPIKED REPLICATE

5 = MEASURED VALUE OF FIFTH SPIKED REPLICATE

6 = MEASURED VALUE OF SIXTH SPIKED REPLICATE

7 = MEASURED VALUE OF SEVENTH SPIKED REPLICATE

M = MEDIA CODE (A ONE-LETTER CODE DESIGNATING THE MEDIA OF THE SAMPLE):

A = AIR H = HAZARDOUS WASTE/OTHER

S = SOLID (SOIL, SEDIMENT, SLUDGE)

T = TISSUE (PLANT & ANIMAL)

W = WATER (GROUND WATER, SURFACE WATER, WASTE WATER, DRINKING WATER)

DESCRIPTION = A SHORT DESCRIPTION OF THE LOCATION WHERE SAMPLE WAS COLLECTED

AIRS/STORET LOC. NO. = THE SPECIFIC LOCATION ID NUMBER OF EITHER OF THESE NATIONAL DATABASE SYSTEMS, AS APPROPRIATE

DATE/TIME INFORMATION = SPECIFIC INFORMATION REGARDING WHEN THE SAMPLE WAS COLLECTED

BEG. DATE = DATE SAMPLING WAS STARTED

BEG. TIME = TIME SAMPLING WAS STARTED

END DATE = DATE SAMPLING WAS COMPLETED

END TIME = TIME SAMPLING WAS COMPLETED

NOTE: A GRAB SAMPLE WILL CONTAIN ONLY BEG. DATE/TIME

A TIMED COMPOSITE SAMPLE WILL CONTAIN BOTH BEG AND END DATE/TIME TO DESIGNATE DURATION OF SAMPLE COLLECTION

OTHER CODES V = VALIDATED

## ANALYTICAL RESULTS/MEASUREMENTS INFORMATION:

COMPOUND = MGP (MEDIA-GROUP-PARAMETER) CODE AND NAME OF THE MEASURED CONSTITUENT OR CHARACTERISTIC OF EACH SAMPLE

UNITS = SPECIFIC UNITS IN WHICH RESULTS ARE REPORTED:

C = CENTIGRADE (CELSIUS) DEGREES

CFS = CUBIC FEET PER SECOND

GPM = GALLONS PER MINUTE

IN = INCHES

I.D. = SPECIES IDENTIFICATION

KG = KILOGRAM

L = LITER

LB = POUNDS

MG = MILLIGRAMS (1 X 10<sup>-3</sup> GRAMS)

MGD = MILLION GALLONS PER DAY

MPH = MILES PER HOUR

MV = MILLIVOLT

M/F = MALE/FEMALE

M2 = SQUARE METER

M3 = CUBIC METER

NA = NOT APPLICABLE

NG = NANOGRAMS (1 X 10<sup>-9</sup> GRAMS)

NTU = NEPHELOMETRIC TURBIDITY UNITS

PC/L = PICO (1 X 10<sup>-12</sup>) CURRIES PER LITER

PG = PICOGRAMS (1 X 10<sup>-12</sup> GRAMS)

P/CM2 = PICOGRAMS PER SQUARE CENTIMETER

SCM = STANDARD CUBIC METER (1 ATM, 25 C)

SQ FT = SQUARE FEET

SU = STANDARD UNITS (PH)

UG = MICROGRAMS (1 X 10<sup>-6</sup> GRAMS)

UMHOS = MICROMHOS/CM (CONDUCTIVITY UNITS)

U/CC2 = MICROGRAMS PER 100 SQUARE CENTIMETERS

U/CM2 = MICROGRAMS PER SQUARE CENTIMETER

1000G = 1000 GALLONS

+/- = POSITIVE/NEGATIVE

# = NUMBER

DATA QUALIFIERS = SPECIFIC CODES USED IN CONJUNCTION WITH DATA VALUES TO PROVIDE ADDITIONAL INFORMATION ON THE REPORTED RESULTS, OR USED TO EXPLAIN THE ABSENCE OF A SPECIFIC VALUE:

BLANK = IF FIELD IS BLANK, NO REMARKS OR QUALIFIERS ARE PERTINENT. FOR FINAL REPORTED DATA, THIS MEANS THAT THE VALUES HAVE BEEN REVIEWED AND FOUND TO BE ACCEPTABLE FOR USE.

I = INVALID SAMPLE/DATA - VALUE NOT REPORTED

J = THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED QUANTITY

K = ACTUAL VALUE OF SAMPLE IS < VALUE REPORTED

L = ACTUAL VALUE OF SAMPLE IS > VALUE REPORTED

M = DETECTED BUT BELOW THE LEVEL OF REPORTED VALUE FOR ACCURATE QUANTIFICATION

O = PARAMETER NOT ANALYZED

U = THE MATERIAL WAS ANALYZED FOR, BUT WAS NOT DETECTED. THE ASSOCIATED NUMERICAL VALUE IS THE SAMPLE DETECTION LIMIT.

ANALYSIS REQUEST DETAIL REPORT      ACTIVITY: 8-ANF30      VALIDATED DATA

| COMPOUND                              | UNITS | 001      | 002        | 003        | 005       | 007        |
|---------------------------------------|-------|----------|------------|------------|-----------|------------|
| SG07 SOLIDS, PERCENT                  | %     | 94.9     | 96.0       | 87.6       | 99.6      | 99.9       |
| SM01 SILVER, TOTAL, BY ICAP           | MG/KG | 5.12     | U 5.12     | U 5.12     | U 5.12    | U 12.6     |
| SM04 BARIUM, TOTAL, BY ICAP           | MG/KG | 21.1     | U 22.0     | 31.4       | 21.1      | U 21.1     |
| SM06 CADMIUM, TOTAL, BY ICAP          | MG/KG | 29.3     | 59.3       | 1.05       | U 0.105   | U 40.6     |
| SM08 CHROMIUM, TOTAL, BY ICAP         | MG/KG | 40.1     | 19.9       | 27.5       | 6.51      | U 6.51     |
| SM14 LEAD, TOTAL, BY ICAP             | MG/KG | 2010     | 16300      | 563        | 5.69      | 85.4       |
| SM27 ARSENIC, TOTAL, BY AA            | MG/KG | 22.8     | 42.2       | 29.6       | 10.0      | U 40.5     |
| SM32 SELENIUM, TOTAL, BY AA           | MG/KG | 10.0     | U 10.0     | U 10.0     | U 10.0    | U 24.3     |
| SM34 MERCURY, TOTAL, BY COLD VAPOR AA | MG/KG | 0.0133   | 0.0771     | 0.00389    | U 0.00628 | 0.00667    |
| SM46 SILVER, TCLP                     | MG/L  | 0.100    | U 0.100    | U 0.100    | U 0.100   | U 0.100    |
| SM47 ARSENIC, TCLP                    | MG/L  | 0.500    | U 0.500    | U 0.500    | U 0.500   | U 0.500    |
| SM48 BARIUM, TCLP                     | MG/L  | 0.580    | 0.784      | 1.21       | 0.163     | U 0.113    |
| SM49 CADMIUM, TCLP                    | MG/L  | 0.0500   | U 0.0500   | U 0.0500   | U 0.0500  | U 1.84     |
| SM50 CHROMIUM, TCLP                   | MG/L  | 0.100    | U 0.100    | U 0.100    | U 0.100   | U 0.100    |
| SM51 LEAD, TCLP                       | MG/L  | 0.500    | U 0.659    | 2.04       | 0.500     | U 3.23     |
| SM52 SELENIUM, TCLP                   | MG/L  | 0.500    | U 0.500    | U 0.500    | U 0.500   | U 0.500    |
| SM53 MERCURY, TCLP                    | MG/L  | 0.000127 | U 0.000127 | U 0.000737 | 0.000127  | U 0.000127 |
| ZZ01 SAMPLE NUMBER                    | NA    | 001      | 002        | 003        | 005       | 007        |
| ZZ02 ACTIVITY CODE                    | NA    | ANF30    | ANF30      | ANF30      | ANF30     | ANF30      |

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 8-ANF30 VALIDATED DATA

| COMPOUND                              | UNITS | 007      | D | 009      | 010        | 011       | 012        |
|---------------------------------------|-------|----------|---|----------|------------|-----------|------------|
| SG07 SOLIDS, PERCENT                  | %     | 99.8     |   | 62.2     | 61.9       | 61.4      | 62.3       |
| SM01 SILVER, TOTAL, BY ICAP           | MG/KG | 11.8     |   | 5.12     | U 5.12     | U 5.12    | U 5.12     |
| SM04 BARIUM, TOTAL, BY ICAP           | MG/KG | 21.1     | U | 21.1     | U 21.1     | U 21.1    | U 21.1     |
| SM06 CADMIUM, TOTAL, BY ICAP          | MG/KG | 34.8     |   | 3.43     | 9.12       | 4.07      | 3.39       |
| SM08 CHROMIUM, TOTAL, BY ICAP         | MG/KG | 6.51     | U | 6.51     | U 6.51     | U 6.51    | U 6.51     |
| SM14 LEAD, TOTAL, BY ICAP             | MG/KG | 80.8     |   | 92.1     | 32.8       | 100       | 34.2       |
| SM27 ARSENIC, TOTAL, BY AA            | MG/KG | 37.3     |   | 10.0     | U 10.0     | U 10.0    | U 10.0     |
| SM32 SELENIUM, TOTAL, BY AA           | MG/KG | 10.7     |   | 10.0     | U 10.0     | U 10.0    | U 10.0     |
| SM34 MERCURY, TOTAL, BY COLD VAPOR AA | MG/KG | 0.0341   |   | 0.0126   | 0.00389    | U 0.00451 | 0.00616    |
| SM46 SILVER, TCLP                     | MG/L  | 0.100    | U | 0.100    | U 0.100    | U 0.100   | U 0.100    |
| SM47 ARSENIC, TCLP                    | MG/L  | 0.500    | U | 0.500    | U 0.500    | U 0.500   | U 0.500    |
| SM48 BARIUM, TCLP                     | MG/L  | 0.0821   | U | 0.0905   | U 0.0900   | U 0.114   | U 0.101    |
| SM49 CADMIUM, TCLP                    | MG/L  | 1.51     |   | 0.0860   | 0.0830     | 0.0500    | U 0.0500   |
| SM50 CHROMIUM, TCLP                   | MG/L  | 0.100    | U | 0.100    | U 0.100    | U 0.100   | U 0.100    |
| SM51 LEAD, TCLP                       | MG/L  | 2.28     |   | 0.737    | 0.852      | 1.97      | 1.25       |
| SM52 SELENIUM, TCLP                   | MG/L  | 0.500    | U | 1.34     | 0.960      | 0.500     | U 1.04     |
| SM53 MERCURY, TCLP                    | MG/L  | 0.000127 | U | 0.000127 | U 0.000237 | 0.000127  | U 0.000127 |
| ZZ01 SAMPLE NUMBER                    | NA    | 007      |   | 009      | 010        | 011       | 012        |
| ZZ02 ACTIVITY CODE                    | NA    | ANF30    |   | ANF30    | ANF30      | ANF30     | ANF30      |

ACTIVITY ANF30 — NUTRA FLO

THE PROJECT LEADER SHOULD CIRCLE ONE - STORET, AIRS, OR ARCHIVE.

CIRCLE ONE:      STORET      AIRS      ARCHIVE

FINAL DATA REPORT APPROVED BY PROJECT LEADER ON 01/19/99 07:14:06 BY

*Redine Housone*

# QC CALCULATIONS

| SAMPLE #      | 007<br>(mg/kg) | 007D<br>(mg/kg) | REL STD DEV<br>% |
|---------------|----------------|-----------------|------------------|
| LEAD          | 85.4           | 80.8            | 3.91             |
| LEAD TCLP     | 3.23           | 2.28            | -----            |
| CADMIUM       | 40.6           | 34.8            | 10.88            |
| CD TCLP       | 1.84           | 1.51            | 13.93            |
| MERCURY       | 0.00667        | 0.0341          | 95.15            |
| HG TCLP       | 0.000127       | MDL             | -----            |
| SILVER        | 12.6           | 11.8            | 4.64             |
| SILVER TCLP   | MDL            | MDL             | -----            |
| ARSENIC       | 40.5           | 37.3            | 5.82             |
| ARSENIC TCLP  | MDL            | MDL             | -----            |
| BARIUM        | MDL            | MDL             | -----            |
| BARIUM TCLP   | MDL            | MDL             | -----            |
| CHROMIUM      | MDL            | MDL             | -----            |
| CHROME TCLP   | MDL            | MDL             | -----            |
| SELENIUM      | 24.3           | 10.7            | 54.95            |
| SELENIUM TCLP | MDL            | MDL             | -----            |

PERCENT REL STD DEV=2(RANGE)/[SQRT(2)]\*(SUM))\*100

# TABLE OF CODES AND HIERARCHY FOR DATA QUALITY REPORT

|        |                                                 |                                                                             |
|--------|-------------------------------------------------|-----------------------------------------------------------------------------|
| >>>>>> | METHOD DETECTION LIMIT:                         |                                                                             |
|        | OPTION A: TOTAL MEASUREMENTS                    |                                                                             |
|        | LEVEL 1:                                        | CR = CALCULATED FROM REPLICATES                                             |
|        | LEVEL 1:                                        | DROR = REPLICATES OUT OF RANGE. SEE LEVEL 2.                                |
|        | LEVEL 2:                                        | DRNO = DEFAULT - LOOKUP ASSOCIATED WITH MGP CODE                            |
|        | OPTION B: FIELD MEASUREMENTS (SAME AS OPTION A) |                                                                             |
|        | OPTION C: LAB MEASUREMENTS (SAME AS OPTION A)   |                                                                             |
|        | PRECISION:                                      |                                                                             |
|        | OPTION A: TOTAL MEASUREMENTS                    |                                                                             |
|        | LEVEL 1:                                        | DS ONLY = CALCULATED FROM FIELD DUPLICATES                                  |
| >>>>>> | LEVEL 2:                                        | FK ONLY = CALCULATED FROM FIELD SPIKE DUPLICATES                            |
|        | LEVEL 3:                                        | DS & FK = CALCULATED FROM FIELD DUPLICATES AND FIELD SPIKE DUPLICATES       |
|        | LEVEL 4:                                        | DA ONLY = CALCULATED FROM LAB DUPLICATES                                    |
|        | LEVEL 5:                                        | LK ONLY = CALCULATED FROM LAB MATRIX SPIKE DUPLICATES                       |
|        | LEVEL 6:                                        | DA & LK = CALCULATED FROM LAB DUPLICATES AND LAB MATRIX SPIKE DUPLICATES    |
|        | LEVEL 7:                                        | PS ONLY = CALCULATED FROM PERFORMANCE SAMPLES                               |
|        | OPTION B: FIELD MEASUREMENTS                    |                                                                             |
|        | LEVEL 1:                                        | DS ONLY = CALCULATED FROM FIELD DUPLICATES                                  |
|        | LEVEL 2:                                        | FK ONLY = CALCULATED FROM FIELD SPIKE DUPLICATES                            |
|        | LEVEL 3:                                        | DS & FK = CALCULATED FROM FIELD DUPLICATES AND FIELD SPIKE DUPLICATES       |
| >>>>>> | LEVEL 4:                                        | PS ONLY = CALCULATED FROM PERFORMANCE SAMPLES                               |
|        | OPTION C: LAB MEASUREMENTS                      |                                                                             |
|        | LEVEL 1:                                        | DA ONLY = CALCULATED FROM LAB DUPLICATES                                    |
|        | LEVEL 2:                                        | LK ONLY = CALCULATED FROM LAB MATRIX SPIKE DUPLICATES                       |
|        | LEVEL 3:                                        | DA & LK = CALCULATED FROM LAB DUPLICATES AND LAB MATRIX SPIKE DUPLICATES    |
|        | LEVEL 4:                                        | PS ONLY = CALCULATED FROM PERFORMANCE SAMPLES                               |
|        | BIAS:                                           |                                                                             |
|        | OPTION A: TOTAL MEASUREMENTS                    |                                                                             |
|        | LEVEL 1:                                        | FS ONLY = CALCULATED FROM FIELD SPIKES                                      |
|        | LEVEL 2:                                        | FK ONLY = CALCULATED FROM FIELD SPIKE DUPLICATES                            |
|        | LEVEL 3:                                        | FS & FK = CALCULATED FROM FIELD SPIKES AND FIELD SPIKE DUPLICATES           |
|        | LEVEL 4:                                        | SS ONLY = CALCULATED FROM LAB MATRIX SPIKES                                 |
|        | LEVEL 5:                                        | LK ONLY = CALCULATED FROM LAB MATRIX SPIKE DUPLICATES                       |
|        | LEVEL 6:                                        | SS & LK = CALCULATED FROM LAB MATRIX SPIKES AND LAB MATRIX SPIKE DUPLICATES |
|        | LEVEL 7:                                        | PS ONLY = CALCULATED FROM PERFORMANCE SAMPLES                               |
|        | LEVEL 8:                                        | MS ONLY = CALCULATED FROM METHOD STANDARDS                                  |
|        | LEVEL 9:                                        | PS & MS = CALCULATED FROM PERFORMANCE SAMPLES AND METHOD STANDARDS          |
| >>>>>> | OPTION B: FIELD MEASUREMENTS                    |                                                                             |
|        | LEVEL 1:                                        | FS ONLY = CALCULATED FROM FIELD SPIKES                                      |
|        | LEVEL 2:                                        | FK ONLY = CALCULATED FROM FIELD SPIKE DUPLICATES                            |
|        | LEVEL 3:                                        | FS & FK = CALCULATED FROM FIELD SPIKES AND FIELD SPIKE DUPLICATES           |
|        | LEVEL 4:                                        | PS ONLY = CALCULATED FROM PERFORMANCE SAMPLES                               |
|        | LEVEL 5:                                        | MS ONLY = CALCULATED FROM METHOD STANDARDS                                  |
|        | LEVEL 6:                                        | PS & MS = CALCULATED FROM PERFORMANCE SAMPLES AND METHOD STANDARDS          |
|        | OPTION C: LAB MEASUREMENTS                      |                                                                             |
|        | LEVEL 1:                                        | SS ONLY = CALCULATED FROM LAB MATRIX SPIKES                                 |
|        | LEVEL 2:                                        | LK ONLY = CALCULATED FROM LAB MATRIX SPIKE DUPLICATES                       |
|        | LEVEL 3:                                        | SS & LK = CALCULATED FROM LAB MATRIX SPIKES AND LAB MATRIX SPIKE DUPLICATES |
|        | LEVEL 4:                                        | PS ONLY = CALCULATED FROM PERFORMANCE SAMPLES                               |
|        | LEVEL 5:                                        | MS ONLY = CALCULATED FROM METHOD STANDARDS                                  |
|        | LEVEL 6:                                        | PS & MS = CALCULATED FROM PERFORMANCE SAMPLES AND METHOD STANDARDS          |



## DATA QUALITY REPORT

FOR ACTIVITY 8ANF30 ALL PARAMETERS (A)  
 SINGLE ACTIVITY (A), TOTAL MEASUREMENTS (A),

(1) EXPRESSED AS THE AVERAGE RELATIVE STANDARD DEVIATION  
 (2) EXPRESSED AS THE AVERAGE PERCENT RECOVERY

## = NO QC FILE  
 \*\*\* = INSUFFICIENT DATA

| MGP<br>NUM | PARAMETER DESCRIPTION            | UNITS | METHOD<br>DETECTION<br>LIMIT | QC<br>USED | (1)<br>PRECISION | QC<br>USED | (2)<br>BIAS | QC<br>USED |
|------------|----------------------------------|-------|------------------------------|------------|------------------|------------|-------------|------------|
|            |                                  |       |                              |            |                  |            |             |            |
| SG07       | SOLIDS, PERCENT                  | %     |                              | DRNO       | 3.25             | DS ONLY    | 50.0        | SS ONLY    |
| SM01       | SILVER, TOTAL, BY ICAP           | MG/KG | 0.615                        | CR         | 48.6             | DS ONLY    | 118         | SS ONLY    |
| SM04       | BARIUM, TOTAL, BY ICAP           | MG/KG | 3.56                         | CR         | 27.5             | DS ONLY    | 96.6        | SS ONLY    |
| SM06       | CADMIUM, TOTAL, BY ICAP          | MG/KG | 0.487                        | CR         | 7.44             | DA ONLY    | 94.2        | SS ONLY    |
| SM08       | CHROMIUM, TOTAL, BY ICAP         | MG/KG | 0.908                        | CR         | 17.0             | DS ONLY    | 104         | SS ONLY    |
| SM14       | LEAD, TOTAL, BY ICAP             | MG/KG | 0.702                        | CR         | 108              | DS ONLY    | 240         | SS ONLY    |
| SM27       | ARSENIC, TOTAL, BY AA            | MG/KG | 0.5                          | DRNO       | 78.1             | DS ONLY    | 92.5        | SS ONLY    |
| SM32       | SELENIUM, TOTAL, BY AA           | MG/KG | 0.5                          | DRNO       | 50.1             | DS ONLY    | 97.9        | SS ONLY    |
| SM34       | MERCURY, TOTAL, BY COLD VAPOR AA | MG/KG |                              | CR         | 53.2             | DS ONLY    | 100         | SS ONLY    |
| SM46       | SILVER, TCLP                     | MG/L  | 0.00389                      | CR         | 33.4             | DS ONLY    | 97.8        | SS ONLY    |
| SM47       | ARSENIC, TCLP                    | MG/L  | 0.00778                      | CR         | 304              | DS ONLY    | 80.9        | SS ONLY    |
| SM48       | BARIUM, TCLP                     | MG/L  | 0.0192                       | CR         | 76.0             | DS ONLY    | 91.8        | SS ONLY    |
| SM49       | CADMIUM, TCLP                    | MG/L  | 0.00460                      | CR         | 13.2             | DS ONLY    | 90.8        | SS ONLY    |
| SM50       | CHROMIUM, TCLP                   | MG/L  | 0.00336                      | CR         | 150              | DS ONLY    | 91.5        | SS ONLY    |
| SM51       | LEAD, TCLP                       | MG/L  | 0.0147                       | CR         | 2.02             | LK ONLY    | 86.7        | SS ONLY    |
| SM52       | SELENIUM, TCLP                   | MG/L  | 0.0248                       | CR         | 14.4             | DS ONLY    | 90.3        | SS ONLY    |
| SM53       | MERCURY, TCLP                    | MG/L  | 0.0593                       | CR         | 53.0             | DA ONLY    | 103         | SS ONLY    |
|            |                                  |       | 0.0001                       | DRNO       |                  |            |             |            |

## NUTRA-FLO PHOTO LOG

9/22/98

1. East Side of Maintenance Shop - Used oil spill on pallet and under pallet
2. Southeast Side of Maintenance Shop - (Drums from left to right, standing on north side of drums) partially full unlabeled used oil, full unlabeled used oil, full labeled used glycol, full unlabeled used oil and empty.
3. Southeast Side of Maintenance Shop - (Drums from right to left, standing on south side of drums) partially full unlabeled used oil, full unlabeled used oil, full labeled used glycol, full unlabeled used oil and empty.
4. Southwest side of facility where cement trucks are cleaned out - An oil spill (about 10 ft x 35 ft). Facing northwest.
5. Southwest side of facility where cement trucks are cleaned out - An oil spill (about 10 ft x 35 ft). Facing west.
6. Southwest side of facility where cement trucks are cleaned out - An oil spill (about 10 ft x 35 ft). Facing southwest.
7. Southwest Side of Facility - Drums being stored. Four unknown drums being stored. (From left to right) Drum on side-empty, empty, 1/2 full of unknown, empty and three drums that were strapped together (one labeled hydraulic oil, and other two unlabeled)
8. Southwest Side of Facility - Drums being stored. Four unknown drums being stored. (From left to right) empty, 1/2 full of unknown, empty
9. Southwest Side of Facility - Drums being stored. Four unknown drums being stored. (From left to right) empty and three drums that were strapped together (one labeled hydraulic oil, and other two unlabeled). Drum on side in back, empty.
10. Process Building / Nulex Warehouse - in Bay #3 and Bay #5
11. Process Building / Nulex Warehouse- Sample # 001 in Bay #3
12. Process Building / Nulex Warehouse- Sample # 002 in Bay #5
13. Process Building / Nulex Warehouse- Sample # 003 in Drums east of Bays
14. Process Building / Nulex Warehouse - in Drums east of Bays

Sample # 003

15. Process Building / Nulex Warehouse- in Drums east of Bays  
Sample # 003

16. Process Building / Nulex Warehouse - Zinc ash in Bay #6  
Sample # 005

17. Process Building / Nulex Warehouse - Zinc oxide in Bay #6 in super sacks - Sample #  
007/007D  
Zinc ash pile on right side of photo - Sample #005

18. Process Building / Nulex Warehouse - Zinc oxide in Bay #6 in super sacks  
Sample # 007

19. Process Building / Nulex Warehouse - Zinc oxide in Bay #6 in super sacks  
Sample # 007D

20. Process Building / Nulex Warehouse (facing southeast) - Southeast exit ramp showing  
dust/residue from warehouse being tracked out into open.

21. Process Building / Nulex Warehouse (facing west) - Drums of zinc sources being stored in  
warehouse prior to being used in manufacturing process. Dust/residue on floor (up to about 2  
inches high) in warehouse that gets tracked out of warehouse. Both west and southeast doors  
were open at the time of the inspection.

22. Process Building / Nulex Warehouse (standing on east side, facing northwest) - Containers of  
zinc sources being stored in warehouse prior to being used in manufacturing process.  
Dust/residue on floor in warehouse that gets tracked out of warehouse.

23. Process Building / Nulex Warehouse (standing on east side, facing north) - Containers of zinc  
sources being stored in warehouse prior to being used in manufacturing process.

24. Process Building / Nulex Warehouse (facing west) - Dust/residue on floor (up to about 2  
inches high) in warehouse that gets tracked out of warehouse. West door was open at the time of  
the inspection.

25. Process Building / Nulex Warehouse (facing east looking at west door) - Area outside of west  
door of warehouse. Construction was occurring in the area.

26. Morten Building (standing on southeast side facing northwest) - Zinc/iron crystal storage  
area. There was some (ranged up to about 2 inches high) dust/residue on the floor. This  
warehouse was just cleaned as was stated by one of the workers. He stated that it was just  
cleaned when we walked in to visually inspect.

27. Morten Building (standing on southeast side facing southwest) - Zinc/iron crystal storage area

28. Morten Building (standing on southeast side facing west) - Zinc/iron crystal storage area. A spill from a tear in one of the bags had occurred.

29. Morten Building - Zinc/iron crystals from Sample #010 from top bag labeled .52

30. Morten Building - Zinc/iron crystals from Sample #010

31. Morten Building - Zinc/iron crystals from Sample #009 from top bag labeled .58

32. Morten Building - Zinc/iron crystals from Sample #009

33. Morten Building - Zinc/iron crystals from Sample #011

34. Morten Building - Zinc/iron crystals from Sample #011 from top front bag labeled

35. Zinc/iron crystals being stored outside, west of the Granular Blending Building and southwest of the Morten Building in a concrete containment structure from a super sack on the west side.  
Sample #012

36. Southwest side of facility where cement trucks are cleaned out - After the oil spill had been cleaned. Facing southeast.